Internal Use Only

North/Latin America http://aic.lgservice.com
Europe/Africa http://eic.lgservice.com
Asia/Oceania http://biz.lgservice.com

LCD TV
SERVICE MANUAL

CHASSIS : LA05E

MODEL : 55LV555H 55LV555H-UA

CAUTION
BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

P/NO : MFL67121704 (1111-REV00)

Printed in Korea

CONTENTS

CONTENTS 2

SAFETY PRECAUTIONS 3

SPECIFICATION 6

ADJUSTMENT INSTRUCTION 12

EXPLODED VIEW 21

SVC. SHEET .....

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

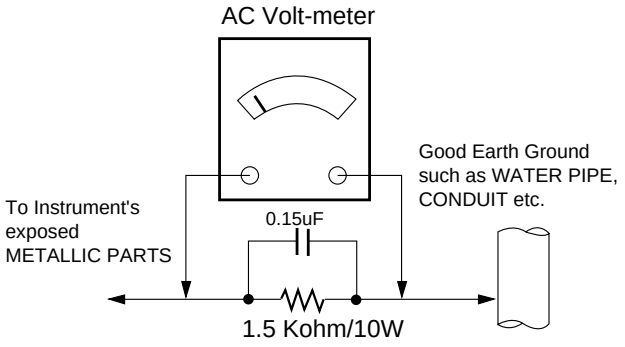
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.
In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the *SAFETY PRECAUTIONS* on page 3 of this publication.
NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
   a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
   CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.
   Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
   CAUTION: This is a flammable mixture.
   Unless specified otherwise in this service manual, lubrication of contacts in not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
   Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*
   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices.* Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle.
   Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
   b. Heat the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.
   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.
   CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This spec sheet is applied all of the 32",37", 42", 47", 55" LED LCD TV with LA05E chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

1) Temperature: 20 ºC ± 5 ºC
2) Relative Humidity: 65 ± 10%
3) Power Voltage : Standard input voltage(100-120V~, 50/60Hz)
   * Standard Voltage of each product is marked by models
4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
5) The receiver must be operated for about 20 minutes prior to the adjustment.

3. Test method

1) Performance: LGE TV test method followed
2) Demanded other specification
   - Safety : UL, CSA, IEC specification
   - EMC: FCC, ICES, IEC specification

4. General Specification(TV)

No	Item	Specification		Remark
1	Receivable System	VSB/64 & 256 QAM/ NTSC-M		
2	Available Channel	VHF : 02 ~ 13 UHF : 14 ~ 69 DTV : 02 ~ 69 CATV : 01 ~ 135 CADTV : 01 ~ 135		
3	Input Voltage	1) AC 100 ~ 120V 50/60Hz		
4	Market	North America		
5	Screen Size	32 / 37 / 42 inches		
6	Aspect Ratio	16:9		
7	Tuning System	FS		
8	LCD Module	EAJ61751501 V6 LC320EXN-SDA1		LG Philips LCD
		EAJ61751801 V6 LC370EUN-SDV2		LG Philips LCD
		EAJ61751705 V6 LC420EUN-SDV3		LG Philips LCD
		EAJ61751601 V6 LC470EUE-SDV1		LG Philips LCD
		EAJ61768501 V6 LC550EUF-SDA1		LG Philips LCD
9	Operating Environment	Temp : 0 ~ 40 deg Humidity : ~ 80 %		
10	Storage Environment	Temp : -20 ~ 60 deg Humidity : -85 %		

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

5. Chrominance & Luminance

5.1. 32LV555H-UA, V6

No.	Item			Min	Typ	Max	Unit	Remarks
1	Max Luminance		Module	300	380		cd/m^2	
	(Center 1-point / Full White Pattern)		Set	250	300			
2	Luminance uniformity			77				5point
3	Color coordinate	RED	X	Typ.	0.637	Typ.		
	(Default)		Y	-0.03	0.341	+0.03		
		GREEN	X		0.318			
			Y		0.606			
		BLUE	X		0.153			
			Y		0.057			
		WHITE	X		0.279			
			Y		0.292			
4	Contrast ratio			850:1	1200:1			
				15,000:1	20,000:1			Applied condition: vivid
6	Color Temperature	Cool		0.254	0.269	0.284		The W/B Tolerance is
				0.258	0.273	0.288		±0.015 for Adjustment
		Medium		0.270	0.285	0.300		
				0.278	0.293	0.308		
		Warm		0.298	0.313	0.324		
				0.314	0.329	0.344		

5.2. 37LV555H-UA, V6

No.	Item			Min	Typ	Max	Unit	Remarks
1	Max Luminance		Module	290	360		cd/m^2	
	(Center 1-point / Full White Pattern)		Set	250	300			
2	Luminance uniformity			77				5point
3	Color coordinate	RED	X	Typ.	0.637	Typ.		
	(Default)		Y	-0.03	0.341	+0.03		
		GREEN	X		0.319			
			Y		0.605			
		BLUE	X		0.154			
			Y		0.051			
		WHITE	X		0.279			
			Y		0.292			
4	Contrast ratio			1000:1	1400:1			
				15,000:1	20,000:1			Applied condition: vivid
6	Color Temperature	Cool		0.254	0.269	0.284		The W/B Tolerance is
				0.258	0.273	0.288		±0.015 for Adjustment
		Medium		0.270	0.285	0.300		
				0.278	0.293	0.308		
		Warm		0.298	0.313	0.324		
				0.314	0.329	0.344		

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

5.3. 42LV555H-UA, V6

No.	Item			Min	Typ	Max	Unit	Remarks
1	Max Luminance		Module	290	360		cd/m^2	
	(Center 1-point / Full White Pattern)		Set	250	300			
2	Luminance uniformity			77				5point
3	Color coordinate	RED	X	Typ.	0.637	Typ.		
	(Default)		Y	-0.03	0.341	+0.03		
		GREEN	X		0.325			
			Y		0.600			
		BLUE	X		0.152			
			Y		0.051			
		WHITE	X		0.279			
			Y		0.292			
4	Contrast ratio			1000:1	1400:1			
				15,000:1	20,000:1			Applied condition: vivid
6	Color Temperature	Cool		0.254	0.269	0.284		The W/B Tolerance is
				0.258	0.273	0.288		±0.015 for Adjustment
		Medium		0.270	0.285	0.300		
				0.278	0.293	0.308		
		Warm		0.298	0.313	0.324		
				0.314	0.329	0.344		

5.4. 47LV555H-UA, V6

No.	Item			Min	Typ	Max	Unit	Remarks
1	Max Luminance		Module	290	360		cd/m^2	
	(Center 1-point / Full White Pattern)		Set	300	350			
2	Luminance uniformity			77				5point
3	Color coordinate	RED	X	Typ.	0.639	Typ.		
	(Default)		Y	-0.03	0.343	+0.03		
		GREEN	X		0.316			
			Y		0.595			
		BLUE	X		0.152			
			Y		0.058			
		WHITE	X		0.279			
			Y		0.292			
4	Contrast ratio			1000:1	1400:1			
				15,000:1	20,000:1			Applied condition: vivid
6	Color Temperature	Cool		0.254	0.269	0.284		The W/B Tolerance is
				0.258	0.273	0.288		±0.015 for Adjustment
		Medium		0.270	0.285	0.300		
				0.278	0.293	0.308		
		Warm		0.298	0.313	0.324		
				0.314	0.329	0.344		

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

5.5. 55LV555H-UA, V6

No.	Item			Min	Typ	Max	Unit	Remarks
1	Max Luminance		Module	320	400		cd/m^2	
	(Center 1-point / Full White Pattern)		Set	350	400			
2	Luminance uniformity			77				5point
3	Color coordinate	RED	X	Typ.	0.649	Typ.		
	(Default)		Y	-0.03	0.333	+0.03		
		GREEN	X		0.308			
			Y		0.607			
		BLUE	X		0.150			
			Y		0.060			
		WHITE	X		0.279			
			Y		0.292			
4	Contrast ratio			1000:1	1400:1			
				15,000:1	20,000:1			Applied condition: vivid
6	Color Temperature	Cool		0.254	0.269	0.284		The W/B Tolerance is
				0.258	0.273	0.288		±0.015 for Adjustment
		Medium		0.270	0.285	0.300		
				0.278	0.293	0.308		
		Warm		0.298	0.313	0.324		
				0.314	0.329	0.344		

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

6. Component Video Input (Y, C_B/P_B, C_R/P_R)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed
1.	720*480	15.73	60	13.5135	SDTV ,DVD 480I
2.	720*480	15.73	59.94	13.5	SDTV ,DVD 480I
3.	720*480	31.50	60	27.027	SDTV 480P
4.	720*480	31.47	59.94	27.0	SDTV 480P
5.	1280*720	45.00	60.00	74.25	HDTV 720P
6.	1920*1080	33.75	60.00	74.25	HDTV 1080I
7.	1920*1080	33.72	59.94	74.176	HDTV 1080I
8.	1920*1080	67.500	60	148.50	HDTV 1080P

7. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed	
	PC					DDC
1.	640*350	31.468	70.09	25.17	EGA	X
2.	720*400	31.469	70.08	28.32	DOS	O
3.	640*480	31.469	59.94	25.17	VESA(VGA)	O
4.	640*480	37.861	72.80	31.50	VESA(VGA)	O
5 .	800*600	37.879	60.31	40.00	VESA(SVGA)	O
6.	800*600	48.077	72.18	50.00	VESA(SVGA)	O
7.	1024*768	48.363	60.00	65.00	VESA(XGA)	O
8.	1024*768	56.476	70.06	75.00	VESA(XGA)	O
9.	1280*768	47.776	59.87	79.50	CVT(WXGA)	O
10.	1280*768	60.289	4.893	102.25	CVT(WXGA)	O
11.	1360*768	47.712	60.015	85.50	VESA(WXGA)	O
12.	1280*1024	63.981	60.020	108.00	VESA (SXGA)	O
13.	1280*1024	79.976	75.025	135	VESA (SXGA)	O
14.	1600*1200	75.000	60.000	162	VESA (UXGA)	X
15.	1920*1080	66.587	59.934	138.50	WUXGA (Reduced Blanking)	O

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

8. HDMI input (PC/DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed	
	PC					DDC
1.	640*350	31.468	70.09	25.17	EGA	X
2.	720*400	31.469	70.08	28.32	DOS	O
3.	640*480	31.469	59.94	25.17	VESA(VGA)	X
4.	800*600	35.156	56.25	36.00	VESA(SVGA)	O
5 .	800*600	37.879	60.31	40.00	VESA(SVGA)	O
6.	800*600	48.077	72.18	50.00	VESA(SVGA)	X
7.	800*600	46.875	75.00	49.50	VESA(SVGA)	X
8.	1024*768	48.363	60.00	65.00	VESA(XGA)	O
9.	1024*768	56.476	70.06	75.00	VESA(XGA)	X
10.	1024*768	60.023	75.02	78.75	VESA(XGA)	X
11.	1280*768	47.776	59.870	79.5	CVT(WXGA)	O
12	1360*768	47.712	60.015	85.50	VESA (WXGA)	O
13.	1280*1024	63.981	60.020	108.00	VESA (SXGA)	O
14.	1280*1024	79.976	75.025	135	VESA (SXGA)	X
15.	1600*1200	75.000	60.000	162	VESA (UXGA)	X
16.	1920*1080	67.500	60.000	148.50	HDTV 1080P	O
	DTV					
1	720*480	31.47	60	27.027	SDTV 480P	O
2	720*480	31.47	59.94	27.00	SDTV 480P	O
3	1280*720	45.00	60.00	74.25	HDTV 720P	O
4	1280*720	44.96	59.94	74.176	HDTV 720P	O
5	1920*1080	33.75	60.00	74.25	HDTV 1080I	O
6	1920*1080	33.72	59.94	74.176	HDTV 1080I	O
7	1920*1080	67.500	60	148.50	HDTV 1080P	O
8	1920*1080	67.432	59.939	148.352	HDTV 1080P	O
9	1920*1080	27.000	24.000	74.25	HDTV 1080P	O
10	1920*1080	26.97	23.976	74.176	HDTV 1080P	O
11	1920*1080	33.75	30.000	74.25	HDTV 1080P	O
12	1920*1080	33.71	29.97	74.176	HDTV 1080P	O

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

ADJUSTMENT INSTRUCTION

1. Application range

This spec. sheet applies to LA05E Chassis applied LED LCD TV all models manufactured in TV factory

2. Specification

2.1 Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.

2.2 AdjThe adjustment must be performed in the circumstance of 25 ±5 C of temperature and 65±10% of relative humidity if there is no specific designation.

2.4 The input voltage of the receiver must keep 100~240V, 50/60Hz.

2.5 The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15

In case of keeping module is in the circumstance of 0°C, it should be placed in the circumstance of above 15°C for 2 hours

In case of keeping module is in the circumstance of below -20°C, it should be placed in the circumstance of above 15°C for 3 hours,.

Caution) When still image is displayed for a period of 20 minutes or longer (especially where W/B scale is strong. Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area.

3. Adjustment items

3.1 Main PCB check process

- Adjust 480i Comp
- Adjust 1080p Comp
- Adjust RGB

Above adjustment items can be also performed in Final Assembly if needed. Both Board-level and Final assembly adjustment items can be check using In-Star Menu 1.ADJUST CHECK.

3.2 Final assembly adjustment

- EDID/DDC download
- White Balance adjustment
- RS-232C functionality check
- Factory Option setting per destination
- Ship-out mode setting (In-Stop)

3.3 Etc

- Ship-out mode
- Tool option menu
- USB Download(S/W Update, Option, Service only)
- ISP Download(Option)

4. Automatic Adjustment

4.1. ADC Adjustment

(1) Overview

ADC adjustment is needed to find the optimum black level and gain in Analog-to-Digital device and to compensate RGB deviation.

(2) Equipment & Condition

1) Jig (RS-232C protocol)

2) MSPG-925 Series Pattern Generator(MSPG-925FA)

- Resolution : 480i Comp1 (MSPG-925FA: model-209, pattern-65)
  1080P Comp1 (MSPG-925FA: model-225, pattern-65)
  1024*768 RGB (MSPG-925FA: model-126 , pattern-65)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level : 0.7±0.1 Vp-p

(3) Adjustment

1) Adjustment method

- Using RS-232, adjust items listed in 3.1 in the other shown in “4.1.3.3”

2) Adj. protocol

Protocol	Command	Set ACK
Enter adj. mode	aa 00 00	a 00 OK00x
Source change	xb 00 40	b 00 OK40x (Adjust 480i Comp1)
		(Adjust 1080p Comp1)
	xb 00 60	b 00 OK60x (Adjust 1080p RGB)
Begin adj.	ad 00 10	
Return adj. result		OKx (Case of Success)
		NGx (Case of Fail)
Read adj. data	(main)	(main : component1 480i, RGB 1080p)
	ad 00 20	00000000000000000000000007c007b006dx
	(sub)	(main : component1 1080p)
	ad 00 21	00000007000000000000000007c00830077x
Confirm adj.	ad 00 99	NG 03 00x (Fail)
		NG 03 01x (Fail)
		NG 03 02x (Fail)
		OK 03 03x (Success)
End adj.	aa 00 90	a 00 OK90x

Ref.) ADC Adj. RS232C Protocol_Ver1.0

3) Adj. order

- aa 00 00 [Enter ADC adj. mode]
- xb 00 40 [Change input source to Component1(No action)]
- ad 00 10 [Adjust 480i Comp1]
- ad 00 10 [Adjust 1080p Comp1]
- xb 00 60 [Change input source to RGB(No action)]
- ad 00 10 [Adjust 1080p RGB]
- ad 00 90 End adj.

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

5. Manual Adjustment

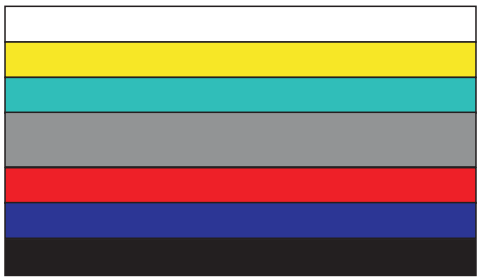
5.1 ADC(Saturn5) Adjustment

5.1.1 Overview

ADC adjustment is needed to find the optimum black level and gain

5.1.2 Equipment & Condition

1) Adjust Remocon
2) 801GF(802B, 802F, 802R) or MSPG925FA Pattern Generator
   - Resolution: 480i, 1024*768
   - Pattern : Horizontal 100% Color Bar Pattern
   - Pattern level: 0.7±0.1 Vp-p
   - Image



3) Must use standard cable

5.1.3 Adjust method

5.1.3.1 ADC 480i Comp1

1) Check connected condition of Comp1 cable to the equipment
2) Give a 480i Mode, Horizontal 100% Color Bar Pattern to Comp1.
   (MSPG-925FA -> Model: 209, Pattern: 65)
3) Change input mode as Component1 and picture mode as “Standard”
4) Press the In-start Key on the ADJ remote after at least 1 min of signal reception. Then, select 7. External ADC -> 1. COMP 480i on the menu. Press enter key. The adjustment will start automatically.
5) If ADC calibration is successful, “ADC RGB Success” is displayed. If ADC calibration is failure, “ADC RGB Fail” is displayed.
6) If ADC calibration is failure, after recheck ADC pattern or condition retry calibration Error message refer to

5.1.3.2 ADC 1080p Comp1

1) Check connected condition of Comp1 cable to the equipment
2) Give a 1080p Mode, Horizontal 100% Color Bar Pattern to Comp1.
   (MSPG-925FA -> Model: 225, Pattern: 65)
3) Change input mode as Component1 and picture mode as “Standard”
4) Press the In-start Key on the ADJ remote after at least 1 min of signal reception. Then, select 7. External ADC -> 1. COMP 1080P on the menu. Press enter key. The adjustment will start automatically.
5) If ADC calibration is successful, “ADC RGB Success” is displayed. If ADC calibration is failure, “ADC RGB Fail” is displayed.
6) If ADC calibration is failure, after recheck ADC pattern or condition retry calibration Error message refer to

5.1.3.2 ADC 1024*768 RGB

1) Check connected condition of Component & RGB cable to the equipment
2) Give a 1024*768 Mode, 100% Horizontal Color Bar Pattern to RGB port.
(MSPG-925 Series model:60 , pattern:65)
3) Change input mode as RGB and picture mode as “Standard”
4) Press the In-start Key on the ADJ remote after at least 1 min of signal reception. Then, select 7. External ADC -> 1. COMP 480i on the menu. Press enter key. The adjustment will start automatically.
5) If ADC calibration is successful, “ADC RGB Success” is displayed. If ADC calibration is failure, “ADC RGB Fail” is displayed.
6) If ADC calibration is failure, after recheck ADC pattern or condition retry calibration Error message refer to 5)

5.2. EDID (The Extended Display Identification Data) / DDC (Display Data Channel) download

Reference : Download is only possible in POWER ONLY MODE

5.2.1 Overview

It is a VESA regulation. A PC or a MNT will display an optimal resolution through information sharing without any necessity of user input. It is a realization of “Plug and Play”

5.2.2 Equipment

- Since embedded EDID data is used, EDID download JIG, HDMI cable and D-sub cable are not need.
- Adjust remocon

5.2.3 Download method

1) Press Adj. key on the Adj. R/C,
2) Select EDID D/L menu.
3) By pressing Enter key, EDID download will begin
4) If Download is successful, OK is display, but If Download is failure, NG is displayed.
5) If Download is failure, Re-try download.

- Caution) When EDID Download, must remove RGB/HDMI Cable.

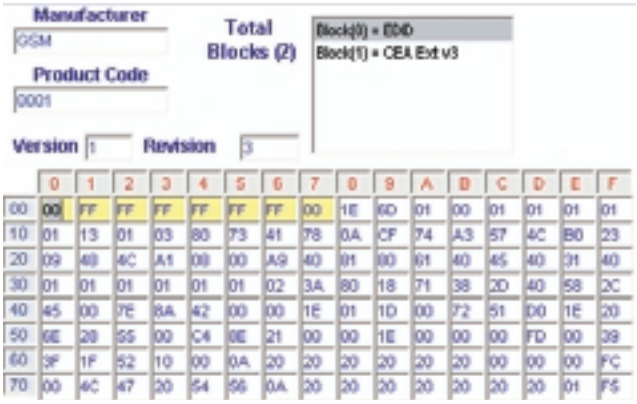
Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

5.2.4 EDID DATA

- HDMI I [C/S: F591]

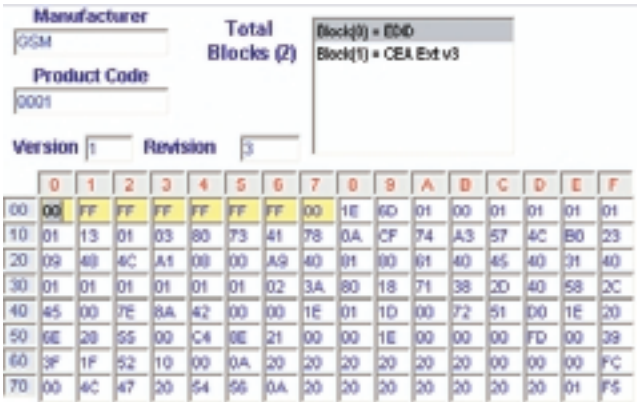
EDID Block 0 table =



EDID Block 1 table =

- HDMIII [C/S: F581]

EDID Block 0 table =



EDID Block 1 table =

- RGB [C/S: DE]

EDID Block 0 table =

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

5.3. White Balance Adjustment

(1) Overview

• W/B adj. Objective & How-it-works

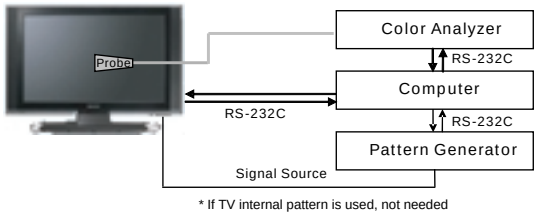
- Objective: To reduce each Panel's W/B deviation
- How-it-works: When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range. In order to prevent saturation of Full Dynamic range and data, one of R/G/B is fixed at 192, and the other two is lowered to find the desired value.
- Adj. condition : normal temperature
  1) Surrounding Temperature: 25±5ºC
  2) Warm-up time: About 5 Min
  3) Surrounding Humidity: 20% ~ 80%

(2) Equipment

1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12)
2) Adj. Computer(During auto adj., RS-232C protocol is needed)
3) Adjust Remocon
4) Video Signal Generator MSPG-925F 720p/216-Gray (Model:217, Pattern:78)
   -> Only when internal pattern is not available

• Color Analyzer Matrix should be calibrated using CS-1000

(3) Equipment connection MAP



Connection Diagram of Automatic Adjustment

(4) Adj. Command (Protocol)

1) RS-232C Command used during auto-adj.

RS-232C COMMAND [CMD	ID	DATA]	Meaning
wb	00	00	Begin White Balance adj.
wb	00	ff	End White Balance adj.(Internal pattern disappeared)

Ex) wb 00 00 -> Begin white balance auto-adj.
wb 00 10 -> Gain adj.
ja 00 ff -> Adj. data
jb 00 c0
...
...
wb 00 1f -> Gain adj. complete
*(wb 00 20(start), wb 00 2f(end)) -> Off-set adj.
wb 00 ff -> End white balance auto adj.

2) Adjustment Map
Applied Model : LA02B Chassis ALL MODELS

	ITEM	Command		Data Range (Hex.)		Default (Decimal)
		Cmd 1	Cmd 2	Min	Max	
Cool	R-Gain	j	g	00	C0	
	G-Gain	j	h	00	C0	
	B-Gain	j	i	00	C0	
	R-Cut					
	G-Cut					
	B-Cut					
Medium	R-Gain	j	a	00	C0	
	G-Gain	j	b	00	C0	
	B-Gain	j	c	00	C0	
	R-Cut					
	G-Cut					
	B-Cut					
Warm	R-Gain	j	d	00	C0	
	G-Gain	j	e	00	C0	
	B-Gain	j	f	00	C0	
	R-Cut					
	G-Cut					

(5) Auto adj. method

1) Set TV in adj. mode using POWER ON key
2) Zero calibrate probe then place it on the center of the Display
3) Connect Cable(RS-232C)
4) Select mode in adj. Program and begin adj.
5) When adj. is complete (OK Sing), check adj. status pre mode (Warm, Medium, Cool)
6) Remove probe and RS-232C cable to complete adj.

* W/B Adj. must begin as start command "wb 00 00" , and finish as end command "wb 00 ff", and Adj. offset if need

(6) Manual adj. method

1) Set TV in Adj. mode using POWER ON
2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface..
3) Press ADJ key -> EZ adjust using adj. R/C > 6. White-Balance then press the cursor to the right (KEY G).
   (When KEY(G) is pressed 216 Gray internal pattern will be displayed)
4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.
5) Adj. is performed in COOL, MEDIUM, WARM 3 modes of color temperature.

- If internal pattern is not available, use RF input. In EZ Adj. menu 6.White Balance, you can select one of 2 Test-pattern: ON, OFF. Default is inner(ON). By selecting OFF, you can adjust using RF signal in 216 Gray pattern.

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

* Adj. condition and cautionary items
1) Lighting condition in surrounding area
Surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.
2) Probe location
- LCD: Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)
3) Aging time
- After Aging Start, Keep the Power ON status during 5 Minutes.
- In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

(7) Reference (White Balance Adj. coordinate and color temperature)
1) W/B Equipment condition
CA210 CCFL/EEFL -> CH9, Test signal, Inner pattern(80IRE)
LED(AUO) -> CH14, Test signal, Inner pattern(80IRE)
2) Above 5 minutes H/run in the inner pattern. (“Powre on” key of adjust remote control)

Color Temperature	Cool	13,000k	K	X=0.269(±0.002) Y=0.273(±0.002)	<Test Signal> Inner pattern (204gray, 80IRE)
	Medium	9,300k	K	X=0.285(±0.002) Y=0.293(±0.002)	
	Warm	6,500k	K	X=0.313(±0.002) Y=0.329(±0.002)	

• Edge LED W/B Table in process of time(Only LGD module)
CA210 : CH14, Test signal : Inner pattern(80IRE)

GP2	Aging Time (Min)	Cool		Medium		Warm	
		x	y	x	y	x	y
		269	273	285	293	313	329
1	0-2	279	288	295	308	319	338
2	3-5	278	286	294	306	318	336
3	6-9	277	285	293	305	317	335
4	10-19	276	283	292	303	316	333
5	20-35	274	280	290	300	314	330
6	36-49	272	277	288	297	312	327
7	50-79	271	275	287	295	311	325
8	80-149	270	274	286	294	310	324
9	Over 150	269	273	285	293	309	323

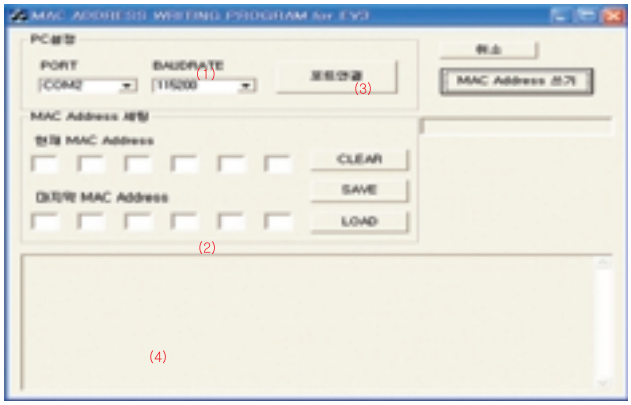
5.4. HDCP (High-Bandwidth Digital Contents Protection) SETTING

- HDCP setting is not necessary in This Chassis.

5.5 MAC Address Download

For downloading the MAC address which be allotted on each LAN Card.

5.5.1 Adjustment Method
1) Connecting the TV set and the PC which has MAC Address Writing program through The RS232C cable.
2) Editing the macaddress.txt
(Inserting start MAC address at top low.)
(Inserting start MAC address at bottom low.)
Launch MAC Address Writing program and set just like below picture.(1)



3) Click the LOAD button for reading the MAC address.(2)
(SAVE : Saving the current MAC Address
CLEAR : Initializing the space which insert MAC Address.)
4) Click the “ MAC Address” button to write current MAC Address.(3)
5) In case of being downloaded normally, you can see the (4) message with “ OK” in the window.
6) In case of being downloaded normally, MAC address increased one by one automatically. So the next set, just click the “ MAC Address, ” button after connecting the port.
(Whenever be finished, the program saves the MAC Address in “ macaddress.txt” file automatically.)

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

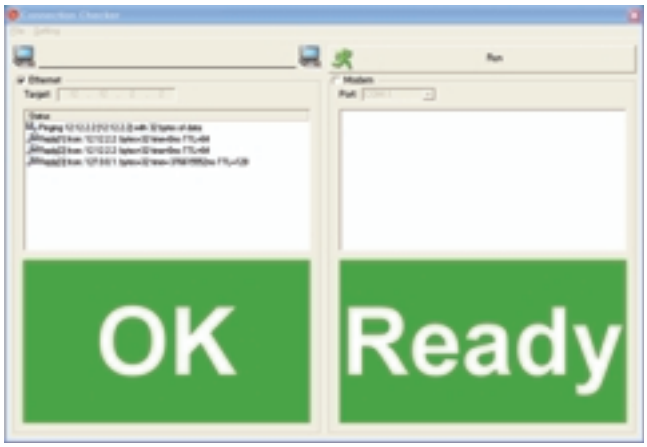
5.6 PING Test

* For confirm works normally the LAN card through PING TEST.

5.6.1 Adjustment Method (PCB Ass' y Level)
1) Connecting the LAN to Ass' y and then turn on the Power.
2) Press the ADJ Key in the adjustment remote controller.
3) Press the " 11. ACAP PING TEST" in EZ ADJUST menu to check the Network works well.

5.6.2 Adjustment Method (Ass' y Line Level)
1) Connecting the LAN port in SET to the PC which has the PING Test program through a Cross LAN Cable. (PC LAN IP setting : 12.12.2.3)
2) Launch the PING Test program and confirm the program Setting. (Checking the TV' s IP is set 12.12.2.2 in program. Don' t check the Modem.)
3) Press the Power Only Key in the adjustment remote controller. (Setting the TV IP)
4) Click the " RUN" button of program, and then program display " OK" or " NG" like a below picture.

* For clear the IP setting after the adjustment, press the INSTOP button.



5.7 Option selection per country

5.7.1 Overview
• Option selection is only done for models in Non-USA North America due to rating
• Applied model: LA05A Chassis applied None USA model(CANADA, MEXICO)

5.7.2 Method
1) Press ADJ key on the Adj. R/C, then select Country Group Meun
2) Depending on destination, select KR or US, then on the lower Country option, select US, CA, MX. Selection is done using +, - KEY

5.8 Tool Option selection

• Method : Press Adj. key on the Adj. R/C, then select Tool option.

Model	Tool 1	Tool 2	Tool 3	Tool 4	Menu
32LV555H	18180	1576	35112	544	2 HDMI, CAN Tuner, 2 RCA
37LV555H	22276	1576	35112	544	2 HDMI, CAN Tuner, 2 RCA
42LV555H	26372	1576	35112	544	2 HDMI, CAN Tuner, 2 RCA
47LV555H	34564	1576	35112	544	2 HDMI, CAN Tuner, 2 RCA
55LV555H	46852	1576	35112	544	2 HDMI, CAN Tuner, 2 RCA

5.9 hip-out mode check (In-stop)

• After final inspection, press In-Stop key of the Adj. R/C and check that the unit goes to Stand-by mode.

• After final inspection, Always turn on the Mechanical S/W.

6. GND and Internal Pressure check

6.1. Method

1) GND & Internal Pressure auto-check preparation
   - Check that Power Cord is fully inserted to the SET. (If loose, re-insert)
2) Perform GND & Internal Pressure auto-check
   - Unit fully inserted Power cord, Antenna cable and A/V arrive to the auto-check process.
   - Connect D-terminal to AV JACK TESTER
   - Auto CONTROLLER(GWS103-4) ON
   - Perform GND TEST
   - If NG, Buzzer will sound to inform the operator.
   - If OK, changeover to I/P check automatically. (Remove CORD, A/V form AV JACK BOX)
   - Perform I/P test
   - If NG, Buzzer will sound to inform the operator.
   - If OK, Good lamp will lit up and the stopper will allow the pallet to move on to next process.

6.2. Checkpoint

• TEST voltage
  - GND: 1.5KV/min at 100mA
  - SIGNAL: 3KV/min at 100mA
• TEST time: 1 second
• TEST POINT
  - GND TEST = POWER CORD GND & SIGNAL CABLE METAL GND
  - Internal Pressure TEST = POWER CORD GND & LIVE & NEUTRAL
• LEAKAGE CURRENT: At 0.5mArms

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

7. Audio

No	Item	Min	Typ	Max	Unit	
1.	Audio practical max Output, L/R	9.0	10.0	12.0	W	EQ Off AVL Off
	(Distortion=10% max Output)	8.5	8.9	9.8	Vrms	Clear Voice Off
2.	Speaker (8Ω Impedance)		TDB	TDB	W	EQ On AVL On Clear Voice On

Measurement condition:

1. RF input : Mono, 1KHz sine wave signal, 100% Modulation
2. CVBS, Component : 1KHz sine wave signal 0.4Vrms
3. RGB PC : 1KHz sine wave signal 0.7Vrms

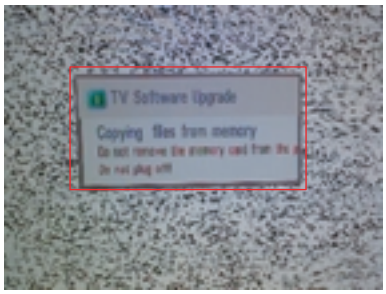
8. Etc

	Power Status	
	Main B/D Shipping Condition	AC Swithch condtion
Chassis Module Assembly	ON	N/A
Front Module Assembly	N/A	OFF
Factory incoming	ON	OFF
Final Assembly	ON	ON
Ship-Out	OFF	ON

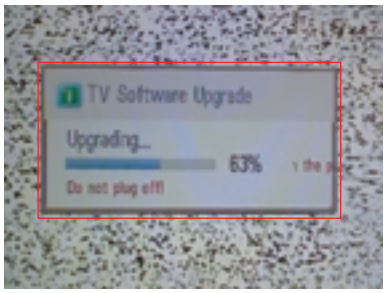
9. USB S/W Download (option)

(1) Put the USB Stick to the USB socket
(2) Automatically detecting update file in USB Stick
- If your downloaded program version in USB Stick is Low, it didn't work.
  But your downloaded version is High, USB data is automatically detecting

(3) Show the message "Copying files from memory"



(4) Updating is staring.



(5) Updating Completed, The TV will restart automatically
(6) If your TV is turned on, check your updated version and Tool option. (explain the Tool option, next stage)
  * If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. if all channel data is cleared, you didn't have a DTV/ATV test on production line.

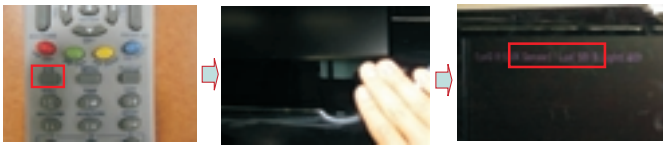
* After downloading, have to adjust TOOL OPTION again.
  1) Push "IN-START" key in service remote controller.
  2) Select "Tool Option 1" and Push "OK" button.
  3) Punch in the number. (Each model has their number.)

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

10. Checking the EYE-Q operation.

Step 1) Press the EYE Key on the Adjustment remote controller.
Step 2) Screen the Eye Q sensor in front of the TV by hands, and keep up about 6 seconds.
Step 3) Checking " Lux" value is changed less than " 100" , or not. If the values are not changed, exchange the sensor unit by soldering.
Step 4) Pull out the hands, keep up about 6 seconds.
Step 5) Checking " Lux" value increase from " 50" , or not.
If the values are not changed, exchange the sensor unit by soldering.



< step 1> < step 2> < step 3>

< step 4> < step 5>

11. Test factor for commercial model

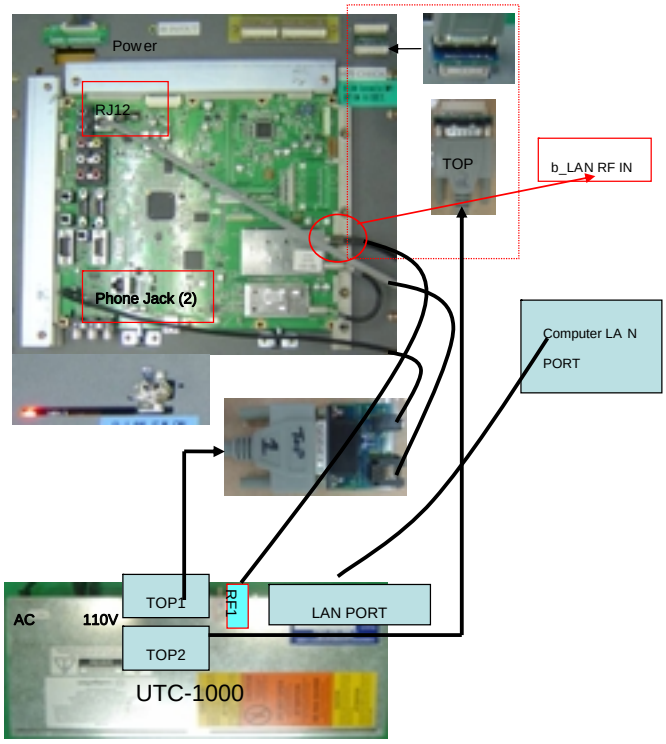
11.1 MPI Communication check

1) By pressing button "Still" of adjust remote-control, b-LAN shall be on.
2) Insert Game controller(RJ12 Cable) into "GAME CONTORL/MPI" of MPI REAR_DECO.
3) If index color is green it's "PASS", if red "NG"
4) By pressing button " Still" of adjust remote-control, b-LAN shall be off.
4) If you find any problem. press <EYE> button and retest.

11.3 b_LAN Main board Check

11.3.1 Overview
It is LNET RF modem & FTG card

11.3.2 Equipment
1) b_LAN Checker: UTC-1000 (with Cable accessory)
2) Computer(for test result monitoring)
3) Connection JIG

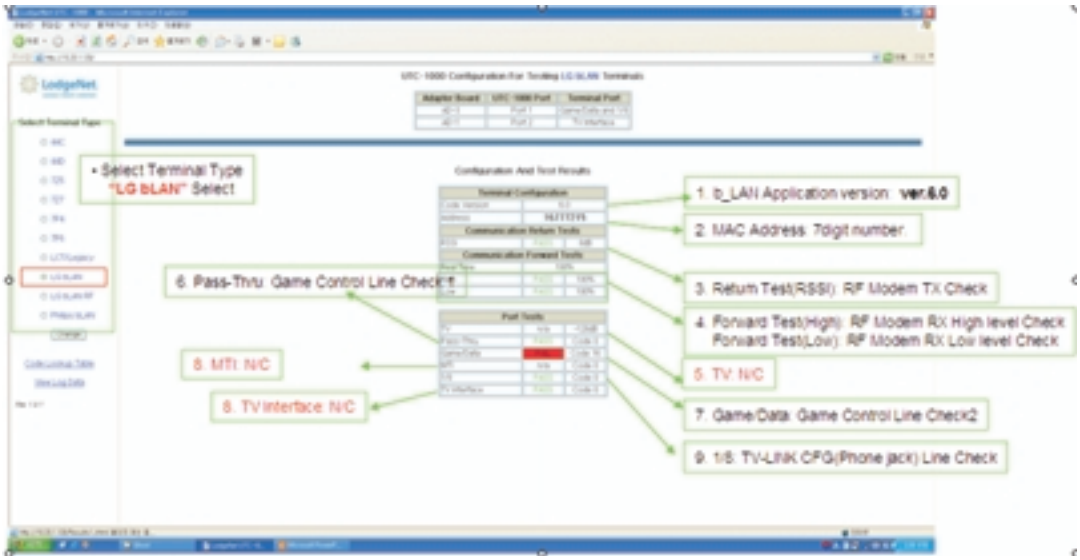


4) Check
==========
1. Setting Procedure
1) Setting JIG
(1) Connect UTC-1000 Equipment to JIG device as a like left picture
- Connection Line:
UTC-1000 TOP1 <--> Game port(RJ21)
-> TV-LINK CFG (Phone Jack)
UTC-1000 TOP2 <--> JIG 11pin Connection
UTC-1000 RF1 <--> b_LAN RF IN
UTC-1000 LAN <--> PC LAN Port

2. Working procedure
1) Connection
UTC-1000 LAN <--> PC LAN Port
UTC-1000 TOP1 <--> Game port(RJ21)
-> TV-LINK CFG (Phone Jack)
UTC-1000 RF1 <--> b_LAN RF IN
2) Power on JIG
3) Test Start
UTC-1000 TOP2 <--> JIG 11pin Connection
4) Checking b-LAN MAC Address
Check whether it is same their address numbers or not between B-LAN Label and on the pc address numbers.

Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only



* Checking JIG contents
1. Check whether displaying all “Pass” or not at the number 3.4.6.7.9 contents of UTC-1000 on the PC
2. Check “Version 6.0” of the 1. b_LAN Application version
3. Check whether it is same their address numbers or not between B-LAN Label and 2. MAC Address on the pc.

12. Default Value in Adjustment mode

(Default values maybe modified during E/S & L/P Event for adjustment time reduction. But, it will be fixed before Mass Production)

13. Serial number download.

Connect Bar Code scan equipment and TV set by RS-232C cable.

1) E2PROM Data Write

CMD	LENGTH	ID_1	ID_2	DATA_1	. . .	DATA_N	CR

- CMD : A0h
- LENGTH : 85 ~ 94h(1~16 BYTES)
- ID_1 : 73h('s')
- ID_2 : 1) Serial Number - 61h('a') 2) Model Name – 62h('b')
- CR : 0Dh
- RETURN : A0h + CR

2) E2PROM Data Read

CMD	LENGTH	ID_1	ID_2	CR

- CMD : A1h
- LENGTH : 85 ~ 94h(1~16 BYTES)
- ID_1 : 73h('s')
- ID_2 : 1) Serial Number - 61h('a') 2) Model Name – 62h('b')
- CR : 0Dh
- RETURN : DATA + CR

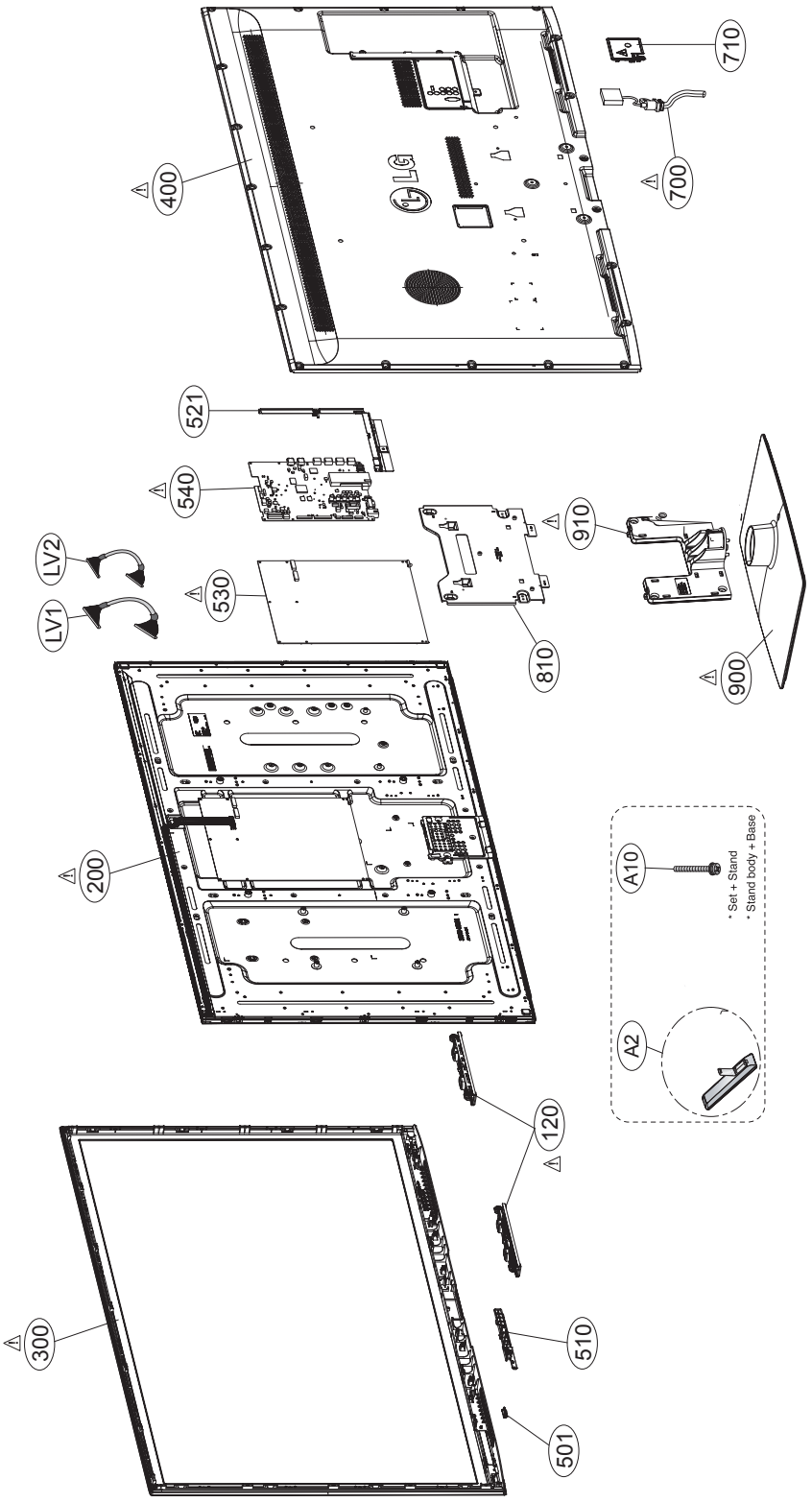
Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

EXPLODED VIEW

IMPORTANT SAFETY NOTICE

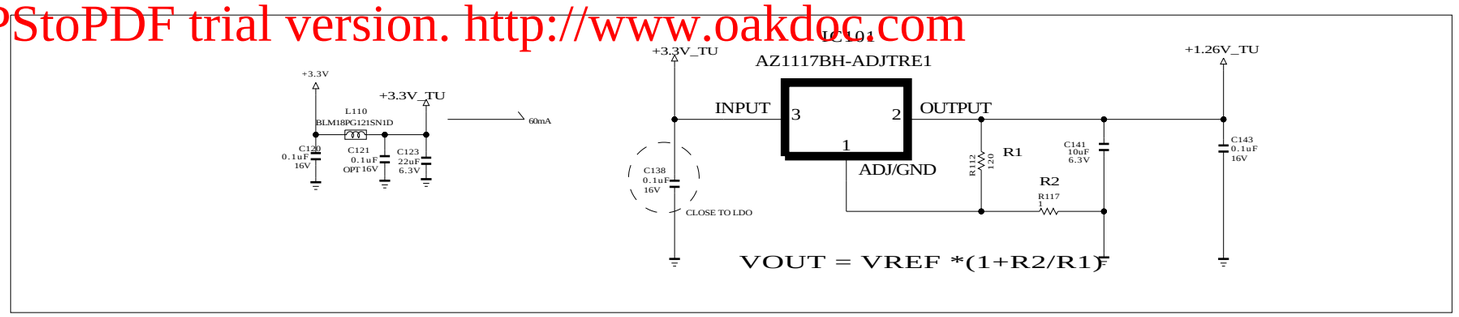
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

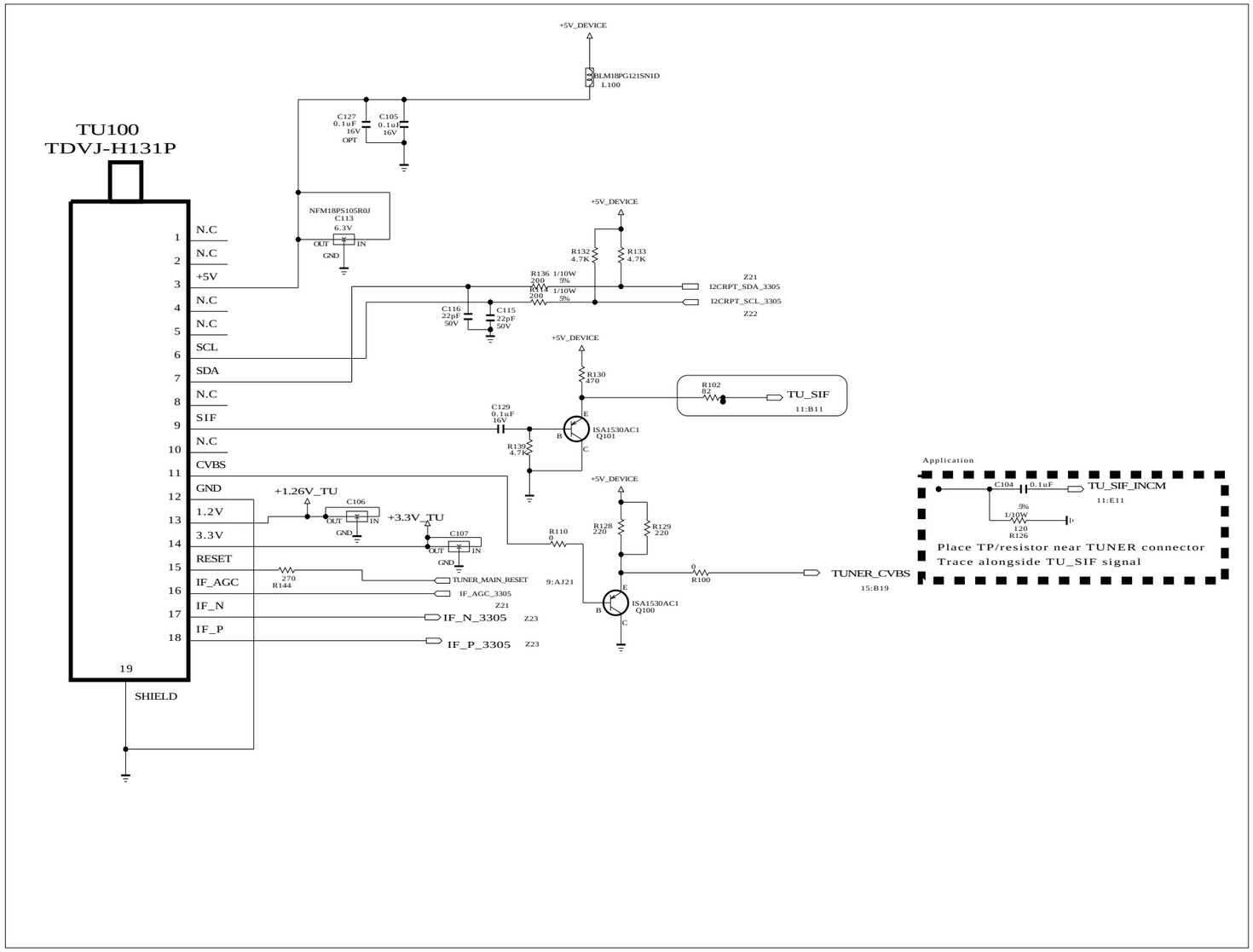


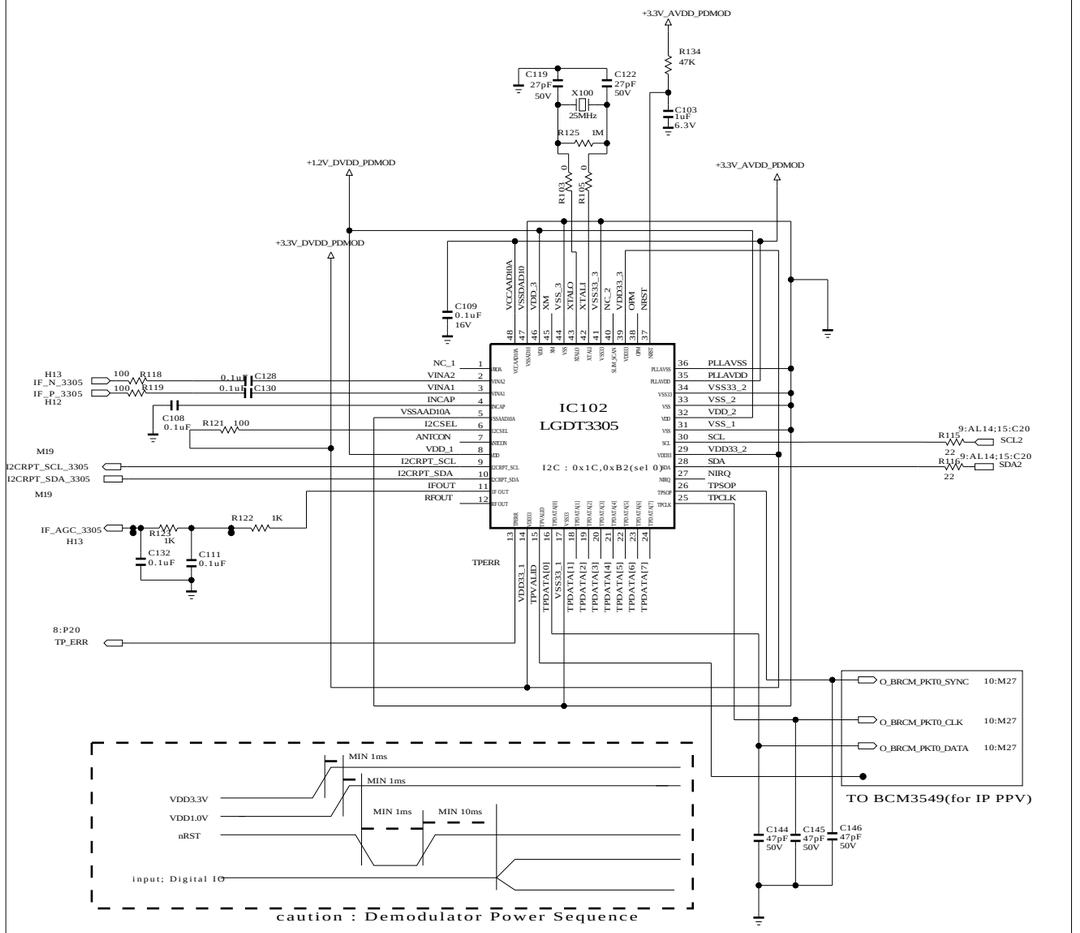
Copyright © 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only

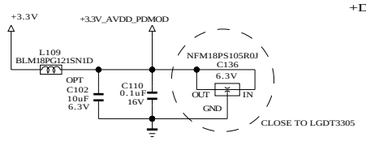
PStoPDF trial version. http://www.oakdoc.com



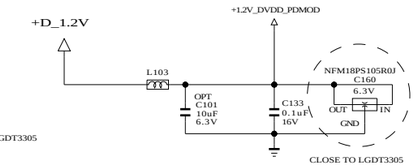


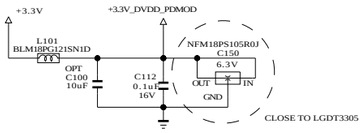


Dmodulator +3.3V B+ BLOCK



Dmodulator +1.0V B+ BLOCK





THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

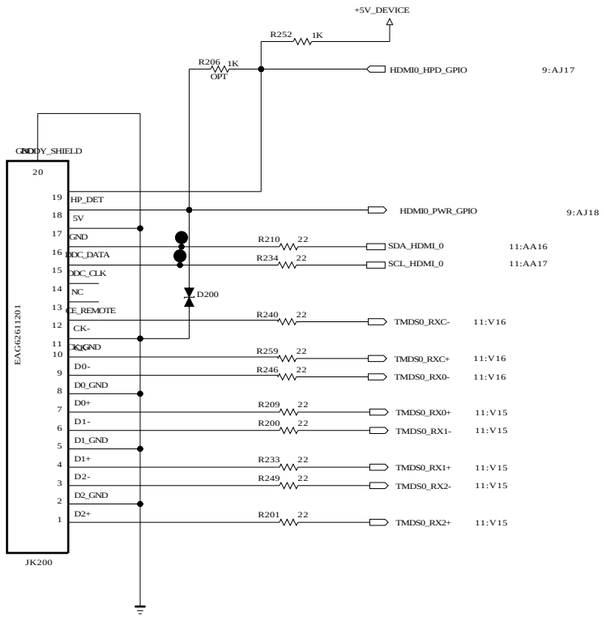
LGElectronics

LG ELECTRONICS

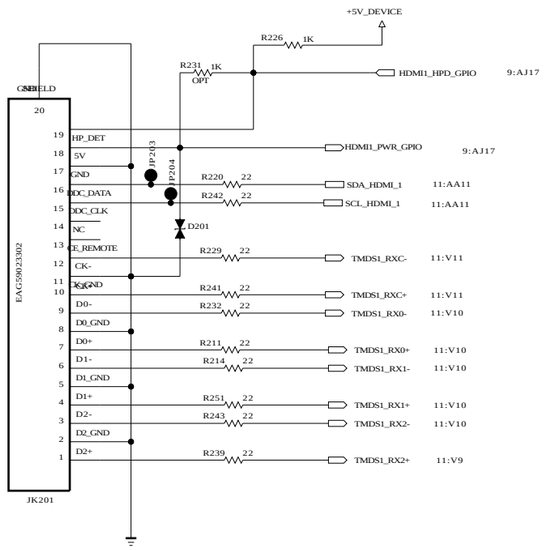
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	Tuner/Demod.	SHEET	1 / 18

PStoPDF trial version. http://www.oakdoc.com

HDMI_0 (Side)



HDMI_1 (Rear)



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

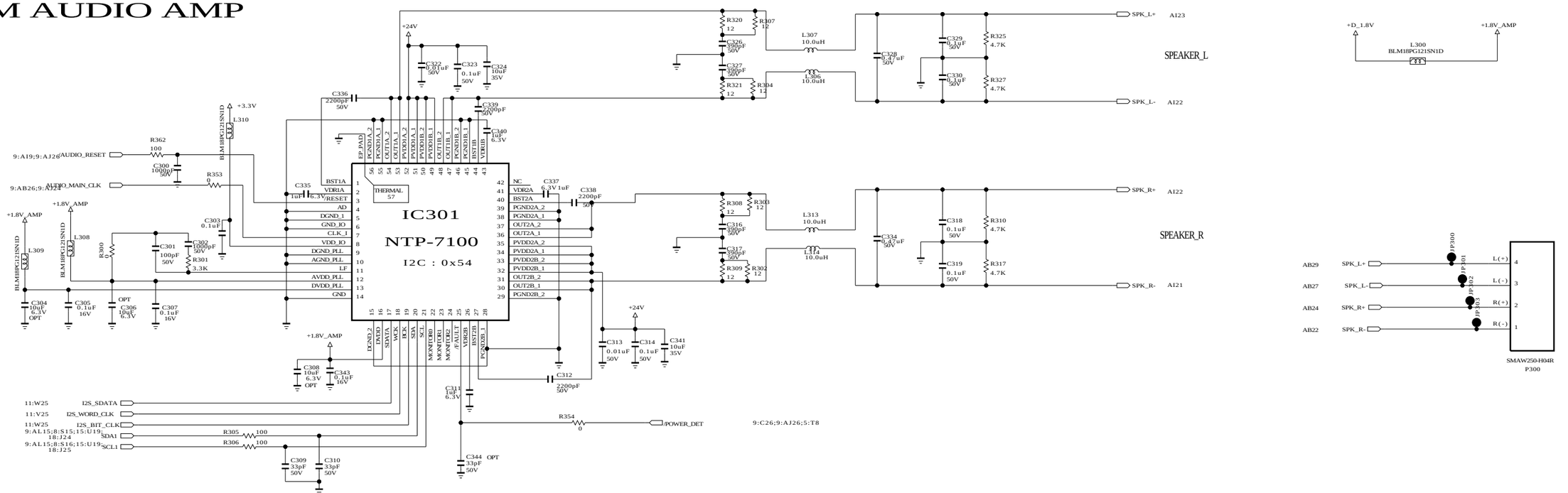
LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	HDMI	SHEET	2 / 18

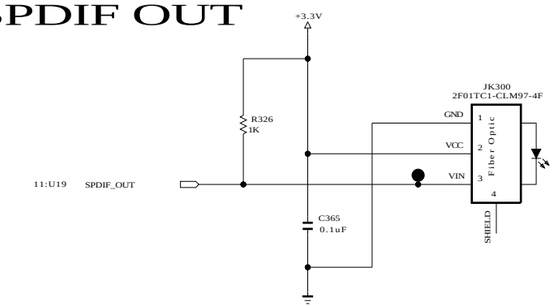
PStoPDF trial version. http://www.oakdoc.com

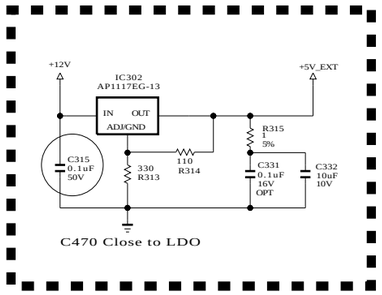
PWM AUDIO AMP



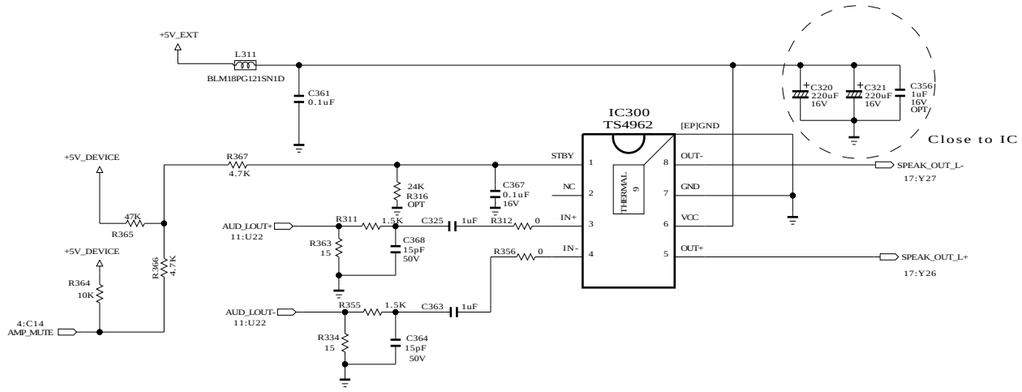
MCLK SDATA WCK BCK TP is necessory

SPDIF OUT





EXTERNAL SPK OUT



THE ⚠SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠SYMBOL MARK OF THE SCHEMETIC.

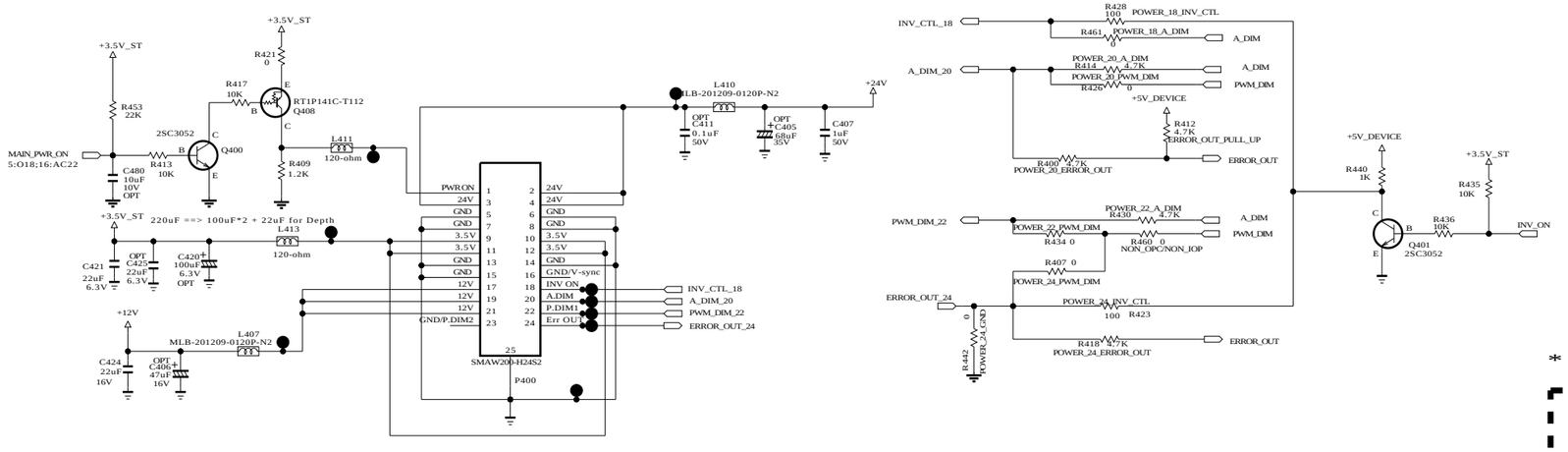
SECRET
LGElectronics

LG ELECTRONICS

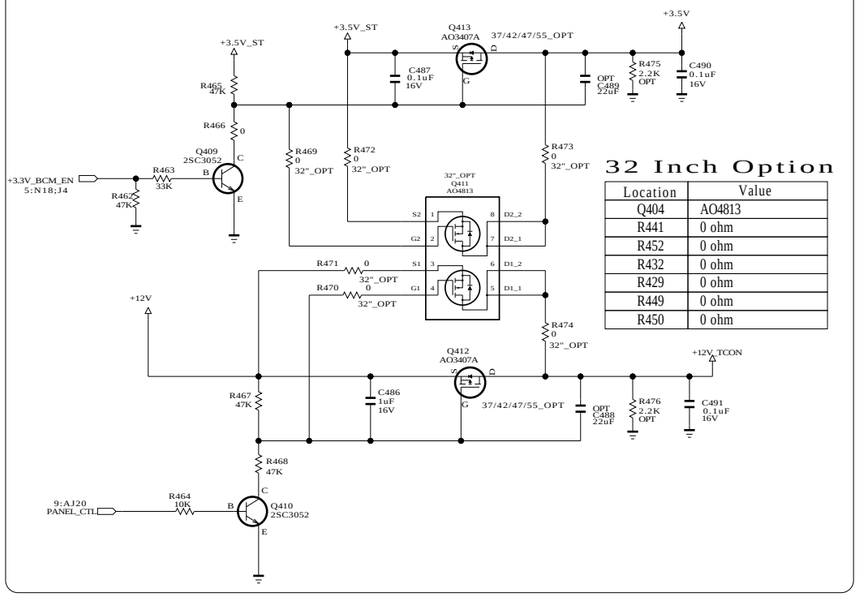
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	AUDIO	SHEET	3 / 18

PStoPDF trial version. http://www.oakdoc.com

* FROM LIPS & POWER B/D -->Apply changed Pin Map



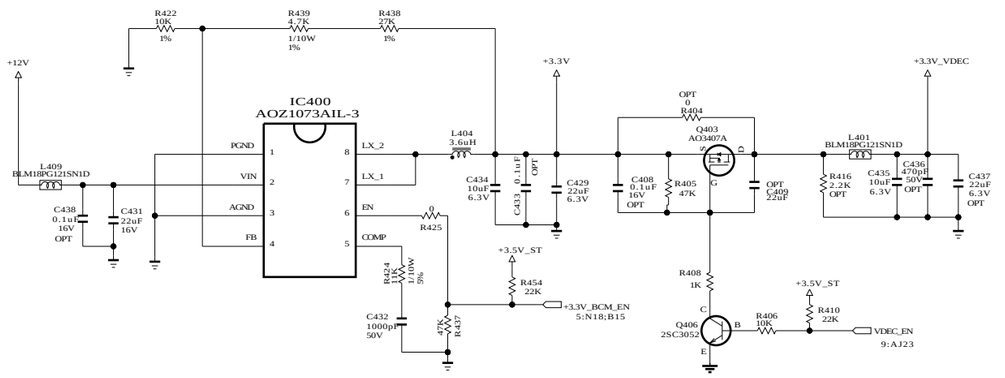
* +5V / +12V



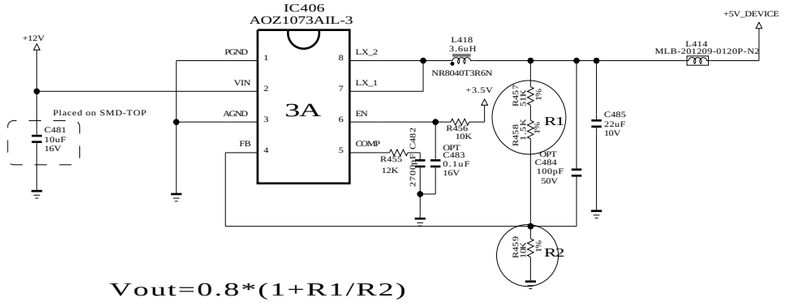
32 Inch Option

Location	Value
Q404	AO4813
R441	0 ohm
R452	0 ohm
R432	0 ohm
R429	0 ohm
R449	0 ohm
R450	0 ohm

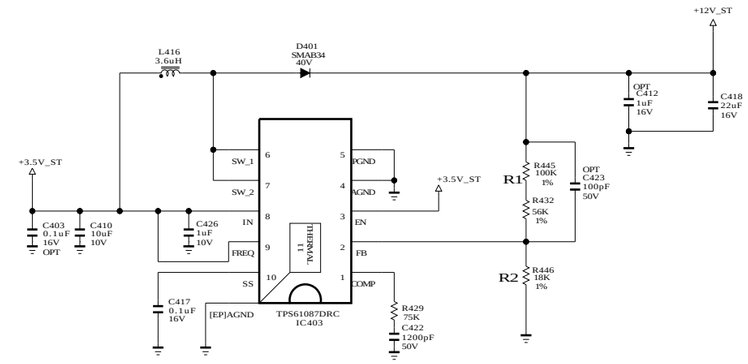
* +12V -> +3.3V for HDIM_SW/ EXT_VDEC/ PWM_AMP / Flash / EEPROM / ProidIom

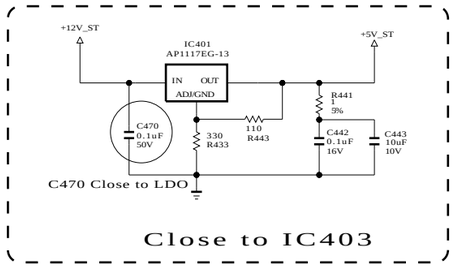


* +12V to +5V USB



* ST_5V(200mA) / ST_12V(1.5A)





THE ⚠SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠SYMBOL MARK OF THE SCHEMETIC.

PStoPDF trial version. http://www.oakdoc.com

RJP

JK500 MJ-657PT-8-SD

RJP_CTRL0 B18
RJP_CTRL1 E17
RJP_CTRL2 E14
RJP_CTRL3 B15
RJP_CTRL4 B12

Micom_Memory
IC500
MSP430F5419IPZR

TI PTC

FRAM I2C

+3.3V_ST_PTC

THE ⚠SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	PTC/RJP	SHEET	5 / 18

PStoPDF trial version. http://www.0daldc.com

BCM-DDR

* EMI GASKET
(protect to DDR noise emission) K4T1G084QF-BCF8

1.8V_1.2V

IC100
LGE3549XSP P22(3D PIP)

C605 IN OUT GND

DDR_BVDD0 A6 0.1uF C656
DDR_BVDD1 A24 0.1uF C657
DDR_BVSS0 B7
DDR_BVSS1 B24
DDR_PLL_TEST F20
DDR_PLL_LDO B23 R615 OPT 0
B17 R618 0
DDR01_CKE C22 R615 0 R614 240 DDR01_CKE
DDR_COMP E16 DDR01_ODT
DDR01_ODT C23
DDR_EXT_CLK B12
DDR0_CLK C12 DDR0_CLK
DDR0_CLKB A13 DDR0_CLKb
DDR1_CLK A12 DDR1_CLK
DDR1_CLKB B15 DDR1_CLKb

DDR01_A00 E14 DDR01_A[0]
DDR01_A01 A15 DDR01_A[1]
DDR01_A02 D15 DDR01_A[2]
DDR01_A03 E13 DDR01_A[3] → DDR01_A[0-3]
DDR0_A04 E12
DDR0_A05 F13 DDR0_A[4]
DDR0_A06 C14 DDR0_A[5]
DDR01_A07 F14 DDR0_A[6]
DDR01_A08 B14 DDR01_A[7] → DDR0_A[4-6]
DDR01_A09 D14 DDR01_A[8]
DDR01_A10 C13 DDR01_A[9]
DDR01_A11 D13 DDR01_A[10] → DDR01_A[7-13]
DDR01_A12 B13 DDR01_A[11]
DDR01_A13 F15 DDR01_A[12]
DDR1_A04 C15 DDR01_A[13]
DDR1_A05 D16 DDR1_A[4]
DDR1_A06 F16 DDR1_A[5] → DDR1_A[4-6]
DDR01_BA0 B16 DDR1_A[6]
DDR01_BA1 E15 DDR01_BA0
DDR01_BA2 A17 DDR01_BA1
DDR01_CASb A8 DDR01_BA2
DDR0_DQ00 B11 DDR01_CASb
DDR0_DQ01 B8 DDR0_DQ[0]
DDR0_DQ02 D11 DDR0_DQ[1]
DDR0_DQ03 E11 DDR0_DQ[2]
DDR0_DQ04 C8 DDR0_DQ[3]
DDR0_DQ05 C11 DDR0_DQ[4]
DDR0_DQ06 C9 DDR0_DQ[5]
DDR0_DQ07 D8 DDR0_DQ[6]
DDR0_DQ08 E10 DDR0_DQ[7]
DDR0_DQ09 E9 DDR0_DQ[8]
DDR0_DQ10 F11 DDR0_DQ[9]
DDR0_DQ11 F12 DDR0_DQ[10]
DDR0_DQ12 E8 DDR0_DQ[11]
DDR0_DQ13 D10 DDR0_DQ[12]
DDR0_DQ14 F8 DDR0_DQ[13]
DDR0_DQ15 DDR0_DQ[14]
DDR1_DQ00 C18 DDR0_DQ[15] → DDR0_DQ[0-15]
DDR1_DQ01 C20 DDR1_DQ[0]
DDR1_DQ02 A18 DDR1_DQ[1]
DDR1_DQ03 B21 DDR1_DQ[2]
DDR1_DQ04 C21 DDR1_DQ[3]
DDR1_DQ05 B18 DDR1_DQ[4]
DDR1_DQ06 B20 DDR1_DQ[5]
DDR1_DQ07 D18 DDR1_DQ[6]
DDR1_DQ08 E18 DDR1_DQ[7]
DDR1_DQ09 D21 DDR1_DQ[8]
DDR1_DQ10 F18 DDR1_DQ[9]
DDR1_DQ11 E20 DDR1_DQ[10]
DDR1_DQ12 A22 DDR1_DQ[11]
DDR1_DQ13 F17 DDR1_DQ[12]
DDR1_DQ14 B22 DDR1_DQ[13]
DDR1_DQ15 E17 DDR1_DQ[14]
DDR0_DM0 A10 DDR1_DQ[15] → DDR1_DQ[0-15]
DDR0_DM1 C10 DDR0_DM0
DDR1_DM0 A20 DDR0_DM1
DDR1_DM1 F19 DDR1_DM0
DDR0_DQS0 B10 DDR1_DM1
DDR0_DQS0b B9 DDR0_DQS0
DDR0_DQS1 F10 DDR0_DQS0b
DDR0_DQS1b F9 DDR0_DQS1
DDR1_DQS0 B19 DDR0_DQS1b
DDR1_DQS0b C19 DDR1_DQS0
DDR1_DQS1 E19 DDR1_DQS0b
DDR1_DQS1b D19 DDR1_DQS1
DDR01_RASb C16 DDR1_DQS1b
DDR_VREF0 A7 DDR01_RASb
DDR_VREF1 A23
DDR01_WEB C17 DDR01_WEb
DDR_VDDP1P8_1 C7
DDR_VDDP1P8_2 D22

C606 IN OUT GND 0.1uF C658
C638 0.1uF DDR VREF CAP
C639 10uF DDR VREF CAP
C635 10uF
C654 470pF DDR VREF CAP
C653 1uF
C652 470pF DDR VREF CAP
C651 1uF
C650 470pF
C649 1uF
C648 470pF

EAN60345909

+1.8V_DDR_BCM3549

MDS62110205 M2 OPT
MDS62110205 M3 OPT
MDS62110205 M4 OPT
MDS62110205 M5 OPT
MDS62110209 M6
MDS62110205 M7 OPT
MDS62110205 M8 OPT
MDS62110205 M9
MDS62110209 M10 OPT
MDS62110205

IC604 K4T1G084QF-BCF8 IC604-*1
IC605 K4T1G084QF-BCF8 IC605-*1
IC606 K4T1G084QF-BCF8 IC606-*1

CK CK CKE RAS CAS WE CS DQS DQS BA0 BA1 BA2 DM/RDQS NU/RDQS A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12 A13 NC_1 NC_2 ODT DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7 VDDQ_1 VDDQ_2 VDDQ_3 VDDQ_4 VDDQ_5 VDD_1 VDD_2 VDD_3 VDD_4 VSS_1 VSS_2 VSS_3 VSS_4 VSSQ_1 VSSQ_2 VSSQ_3 VSSQ_4 VSSQ_5 VREF VDDL VSSDL

SS DDR

* DDR2 1.8V By CAP - Place these Caps near Memory

+1.8V_DDR_BCM3549

C664 470pF C665 0.047uF C666 0.1uF C667 10uF C668 470pF C669 0.047uF C670 0.1uF C671 10uF C672 22uF C673 0.047uF C674 0.1uF C675 10uF C676 10uF C677 0.1uF C678 0.047uF C679 470pF C680 10uF C681 0.1uF C682 0.047uF C697 470pF

DDR_VTT

DDR01_A[0-3]
DDR01_A[7-13]
DDR1_A[4-6]

DDR01_RASb DDR01_A[2] DDR01_A[0] DDR1_A[6] AR607 R620 75 DDR01_CASb R611 75 DDR01_A[12] DDR01_A[9] DDR01_A[7] DDR1_A[5] AR608 DDR01_A[4] DDR01_A[11] DDR01_A[8] DDR01_A[13] AR606 DDR01_A[3] DDR01_A[1] DDR01_A[10] DDR01_BA1 AR609 DDR01_BA0 DDR01_BA2 DDR01_WEb DDR01_CKE AR610 DDR01_ODT R621 75

C683 0.1uF C684 0.1uF C685 0.1uF C686 0.1uF C687 0.1uF C688 0.1uF

SI

G26;L20;U9;W18; AG9;AL21

IC603 NT5TU128M8DE_BD NANYA DDR

G25;U10 DDR0_CLK R619 100
G25;U10 DDR0_CLKb
G26;U9;W19;AG9; AL15;AL21 DDR01_CKE

E12;U9;W19;AG9; AL15;AL21
E21;U8;W18;AG9;
E11;U8;W18;AG8; AL15;AL21 DDR01_RASb DDR01_CASb DDR01_WEb

E21;K18;U8;AF8; AL16;AL21
E21;K18;U8;AF8; AL18;AL22 DDR01_BA0 DDR01_BA1

DDR01_A[0-3]
DDR01_A[4-6]
DDR01_A[7-13]

DDR01_BA2 E21;U4;W14;AF4; AL16;AL21
DDR01_A[13]
DDR01_ODT G26;U3;W13;AG3; AL15;AL21

DDR0_DQS0 DDR0_DQS0b DDR0_DM0

+1.8V_DDR_BCM3549

DDR0_VREF0 C641 0.1uF C640 470pF

Place Caps close to DRAM pin

EAN60992101

IC605 NT5TU128M8DE_BD NANYA DDR

G25;AG10 DDR1_CLK R617 100
G25;AG10 DDR1_CLKb
G26;L20;U9;AG9; AL15;AL21 DDR01_CKE

E12;M19;U9;AG9; AL15;AL21
E21;M19;U9;AG9;
E11;M19;U8;AG8; AL15;AL21 DDR01_RASb DDR01_CASb DDR01_WEb

E21;K18;U8;AF8; AL16;AL21
E21;K18;U8;AF8; AL18;AL22 DDR01_BA0 DDR01_BA1

DDR01_A[0-3]
DDR01_A[4-6]
DDR01_A[7-13]

DDR01_BA2 E21;L15;U4;AF4; AL16;AL21
DDR01_A[13]
DDR01_ODT G26;L13;U3;AG3; AL15;AL21

DDR1_DQS0 DDR1_DQS0b DDR1_DM0

+1.8V_DDR_BCM3549

DDR1_VREF0 C673 0.1uF C674 470pF

Place Caps close to DRAM pin

EAN60992101

DDR_VTT

DDR01_A[0-3]
DDR01_A[7-13]
DDR0_A[4-6]

DDR01_RASb DDR01_A[2] DDR01_A[0] DDR0_A[6] AR611 DDR01_A[3] DDR01_A[1] DDR01_A[10] DDR01_BA1 AR612 DDR01_A[12] DDR01_A[9] DDR01_A[7] DDR0_A[5] AR613 DDR0_A[4] DDR01_A[11] DDR01_A[8] DDR01_A[13] AR614 DDR01_BA0 DDR01_BA2 DDR01_WEb DDR01_CKE AR615 DDR01_ODT R625 75

C691 0.1uF C689 0.1uF C690 0.1uF C692 0.1uF C693 0.1uF C694 0.1uF

SI

G26;L20;U9;W18; AG9;AL21

* DDR2 1.8V By CAP - Place these Caps near Memory

+1.8V_DDR_BCM3549

C629 470pF C630 0.047uF C631 0.1uF C632 10uF C633 470pF C634 0.047uF C635 0.1uF C636 10uF C637 22uF C638 10uF C639 0.1uF C642 0.047uF C643 470pF C644 10uF C649 0.1uF C660 0.047uF C661 470pF

C602 0.1uF C603 0.1uF C604 0.1uF

SI

IC604 NT5TU128M8DE_BD NANYA DDR

G25;L20 DDR0_CLK
G25;L20 DDR0_CLKb
G26;L20;U9;AG9; AL15;AL21 DDR01_CKE

E12;M19;W19;AG9; AL15;AL21
E21;M19;W18;AG9;
E11;M19;W18;AG8; AL15;AL21 DDR01_RASb DDR01_CASb DDR01_WEb

E21;K18;W18;AF8; AL16;AL21
E21;K18;W18;AF8; AL18;AL22 DDR01_BA0 DDR01_BA1

DDR01_A[0-3]
DDR01_A[4-6]
DDR01_A[7-13]

DDR01_BA2 E21;L15;W14;AF4; AL16;AL21
DDR01_A[13]
DDR01_ODT G26;L13;W13;AG3; AL15;AL21

DDR0_DQ[0-15]

DDR0_DQS1 DDR0_DQS1b DDR0_DM1

+1.8V_DDR_BCM3549

DDR0_VREF0 C662 0.1uF C663 470pF C607 IN OUT GND

Place Caps close to DRAM pin

EAN60992101

IC606 NT5TU128M8DE_BD NANYA DDR

G25;W20 DDR1_CLK
G25;W19 DDR1_CLKb
G26;L20;U9;W19; AG9;AL21 DDR01_CKE

E12;M19;U9;W19; AL15;AL21
E21;M19;U9;W18;
E11;M19;U8;W18; AL15;AL21 DDR01_RASb DDR01_CASb DDR01_WEb

E21;K18;U8;W18;
E21;K18;U8;W18; AL18;AL22 DDR01_BA0 DDR01_BA1

DDR01_A[0-3]
DDR1_A[4-6]
DDR01_A[7-13]

DDR01_BA2 E21;L15;U4;W14; AL16;AL21
DDR01_A[13]
DDR01_ODT G26;L13;U3;W13; AL15;AL21

DDR1_DQ[0-15]

DDR1_DQS1 DDR1_DQS1b DDR1_DM1

+1.8V_DDR_BCM3549

DDR1_VREF0 C695 470pF C696 0.1uF C608 IN OUT GND

Place Caps close to DRAM pin

EAN60992101

DDR VTT

DDR_VTT
L600 120-ohm BLM18PG121SN1D
C601 10uF 6.3V OPT C623 100uF 16V C625 10uF 6.3V OPT C626 0.1uF

+3.3V

IC600 TJ2995D
NC 1 VTT 8
GND 2 PVIN 7
VSENSE 3 AVIN 6
VREF 4 VDDQ 5

DDR0_VREF0 DDR1_VREF0

VREF_ORIGINAL 120-ohm BLM18PG121SN1D L601
VREF_ORIGINAL
L602 BLM18PG121SN1D 120-ohm

C619 0.1uF C621 0.1uF OPT C622 0.1uF C624 0.1uF OPT C646 10uF 6.3V OPT C645 10uF 6.3V

+1.8V_DDR_BCM3549

DDR1_VREF0 VREF_TEST R665 1K R661
VREF_TEST R666 1K R662

+1.8V_DDR_BCM3549

DDR0_VREF0 VREF_TEST R667 1K R663
VREF_TEST R668 1K R664

R667 0 VREF_ORIGINAL
R670 0 VREF_ORIGINAL
R669 0 VREF_ORIGINAL

THE ⚠SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠SYMBOL MARK OF THE SCHEMETIC.

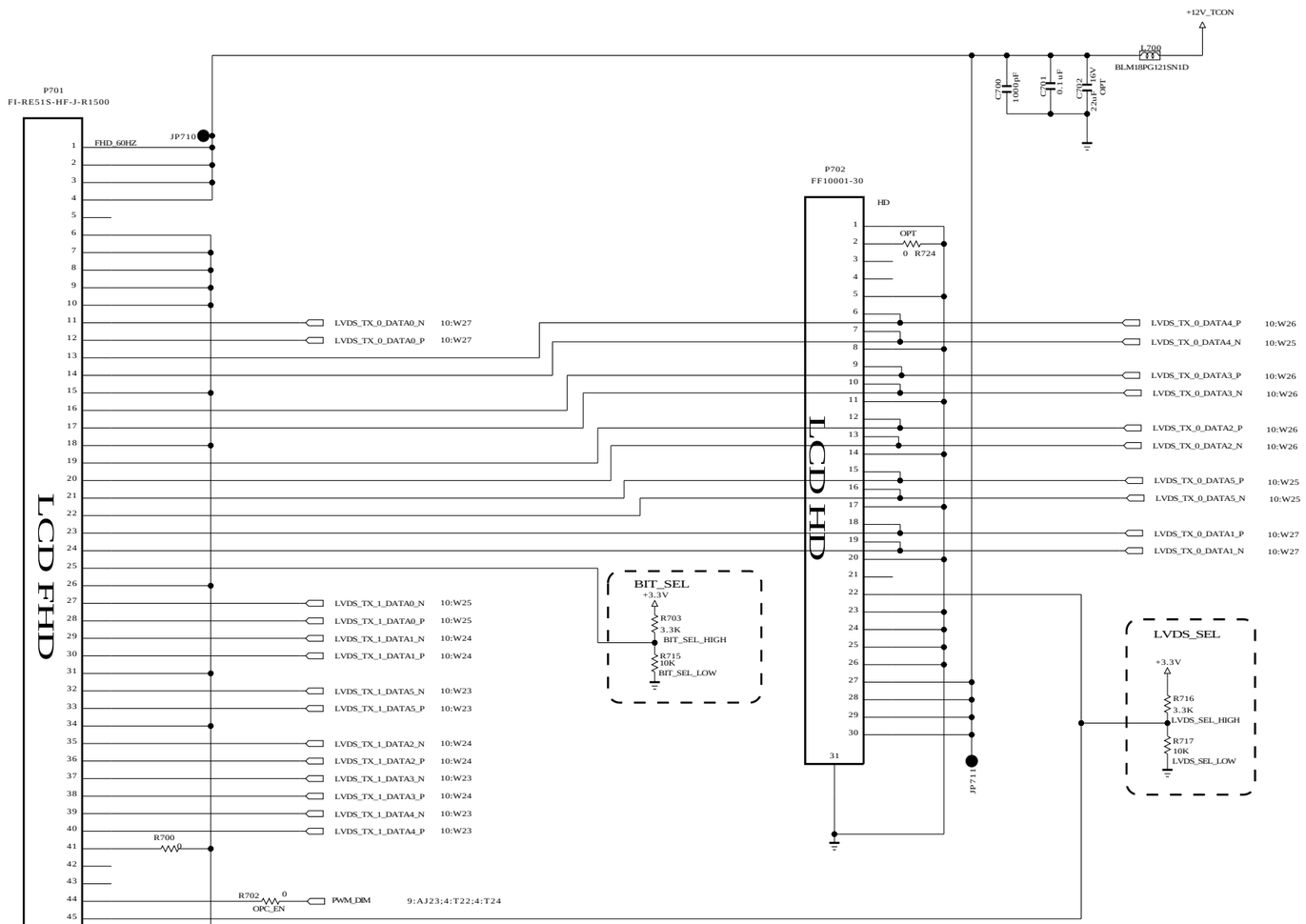
SECRET
LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	DDR	SHEET	6 / 18

PStoPDF trial version. http://www.oakdoc.com

PANEL WAFER



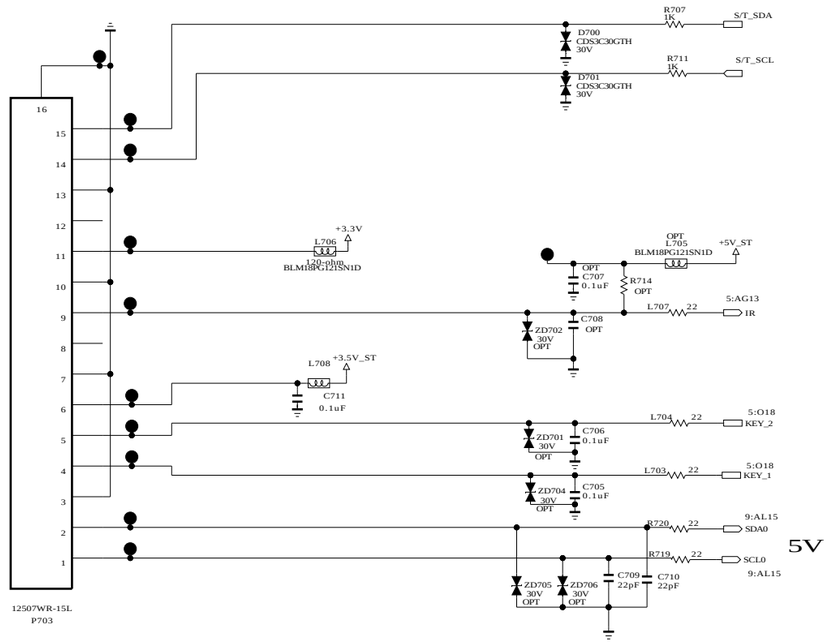
FOR FHD PANEL

LCD PANEL	BCM3549 LVDS	LCD PANEL	BCM3549 LVDS
R2EP(11)	LVDS_TX_0_DATA0_N	R1EP(27)	LVDS_TX_1_DATA0_N
R2EN(12)	LVDS_TX_0_DATA0_P	R1EN(28)	LVDS_TX_1_DATA0_P
R2DP(13)	LVDS_TX_0_DATA1_N	R1DP(29)	LVDS_TX_1_DATA1_N
R2DN(14)	LVDS_TX_0_DATA1_P	R1DN(30)	LVDS_TX_1_DATA1_P
R2CLKP(16)	LVDS_TX_0_DATA5_N	R1CLKP(32)	LVDS_TX_1_DATA5_N
R2CLKN(17)	LVDS_TX_0_DATA5_P	R1CLKN(33)	LVDS_TX_1_DATA5_P
R2CP(19)	LVDS_TX_0_DATA2_N	R1CP(35)	LVDS_TX_1_DATA2_N
R2CN(20)	LVDS_TX_0_DATA2_P	R1CN(36)	LVDS_TX_1_DATA2_P
R2BP(21)	LVDS_TX_0_DATA3_N	R1BP(37)	LVDS_TX_1_DATA3_N
R2BN(22)	LVDS_TX_0_DATA3_P	R1BN(38)	LVDS_TX_1_DATA3_P
R2AP(23)	LVDS_TX_0_DATA4_N	R1AP(39)	LVDS_TX_1_DATA4_N
R2AN(24)	LVDS_TX_0_DATA4_P	R1AN(40)	LVDS_TX_1_DATA4_P

FOR HD PANEL

LCD PANEL	BCM3549 LVDS
RD+	LVDS_TX_0_DATA4_P
RD-	LVDS_TX_0_DATA4_N
RCLK+	LVDS_TX_0_DATA3_P
RCLK-	LVDS_TX_0_DATA3_N
RC+	LVDS_TX_0_DATA2_P
RC-	LVDS_TX_0_DATA2_N
RB+	LVDS_TX_0_DATA5_P
RB-	LVDS_TX_0_DATA5_N
RA+	LVDS_TX_0_DATA1_P
RA-	LVDS_TX_0_DATA1_N

FROM IR & LED & KEY



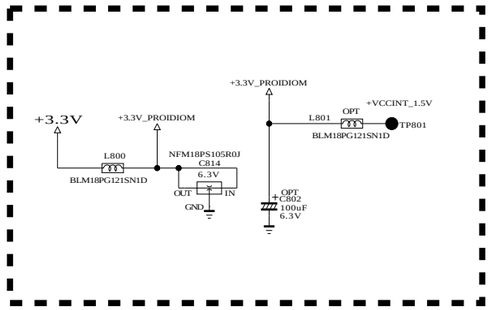
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET
LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	LVDS/IR	SHEET	7 / 18

PStoPDF trial version. http://www.oakdoc.com



IC800
LGDT1001

I2C : 0xF0

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

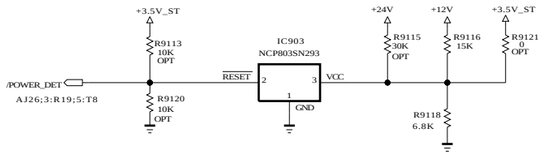
LGElectronics

LG ELECTRONICS

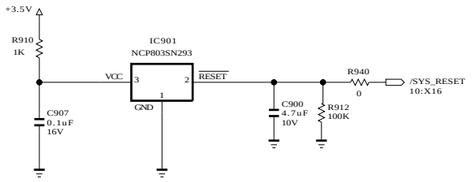
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	PROiDIOM	SHEET	8 / 18

PStoPDF trial version: http://www.oakdoc.com

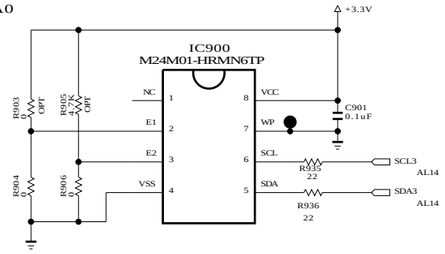
POWER DETECT



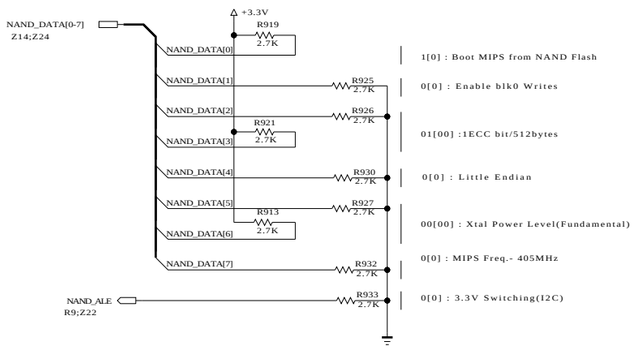
* Reset



* EEPROM : 0xA0



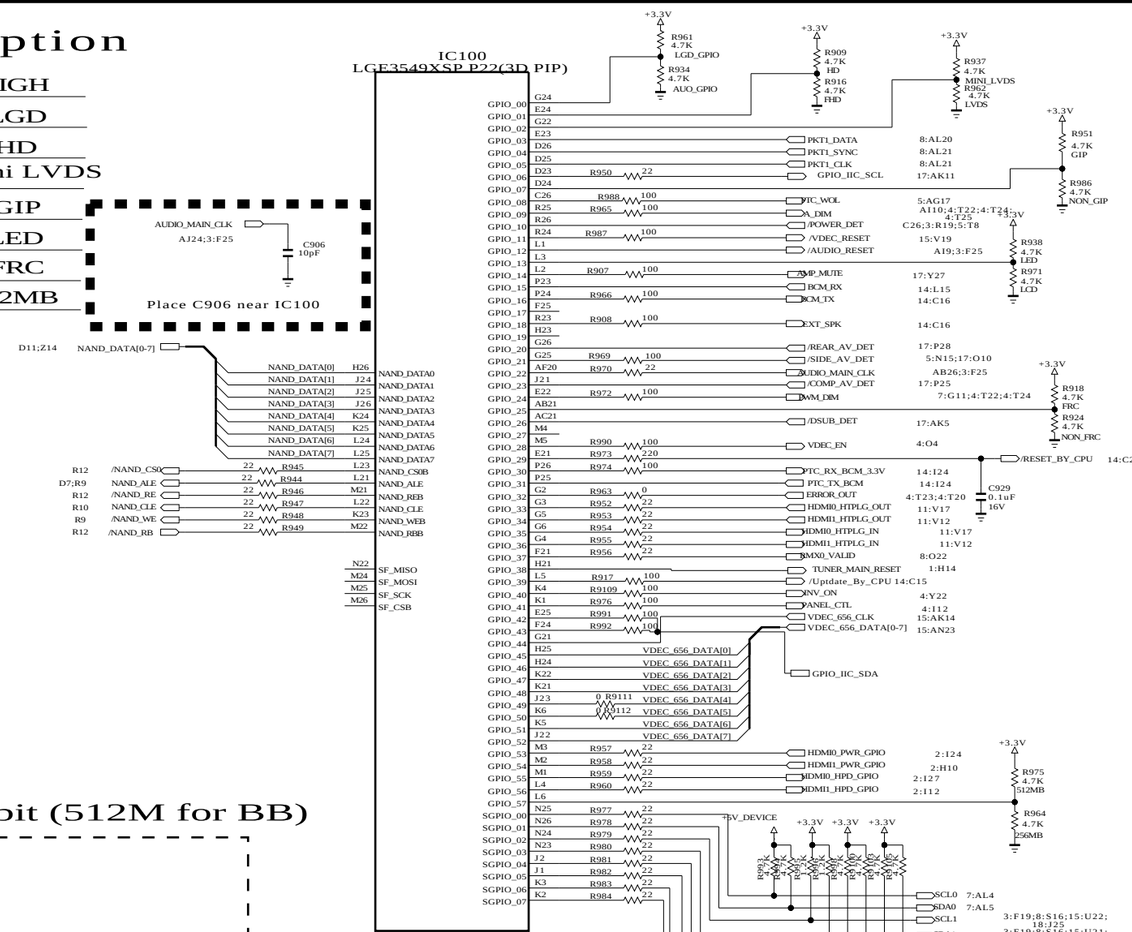
* BCM3549 Boot Strap



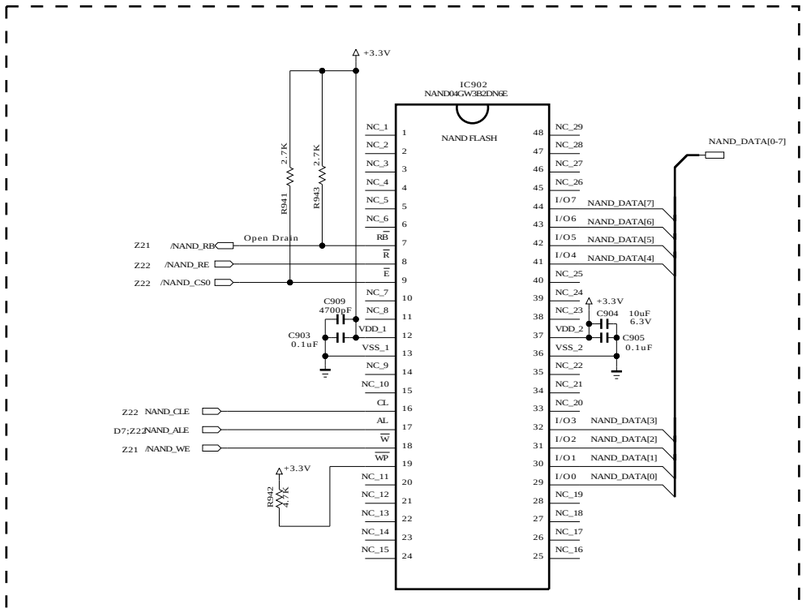
Module option

GPIO	LOW	HIGH
0	AUO	LGD
1	FHD	HD
2	LVDS	Mini LVDS
7	NON GIP	GIP
13	LCD	LED
25	Non FRC	FRC
57	256MB	512MB

IC100 LGE3549XSP P22(3D PIP)

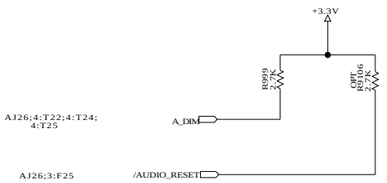


* NAND FLASH MEMORY 4Gbit (512M for BB)



* I2C MAP

* I2C_0 :
* I2C_1 :
* I2C_2 :
* I2C_3 :



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

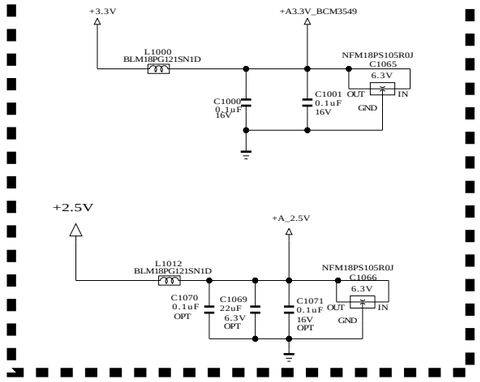
LGElectronics

LG ELECTRONICS

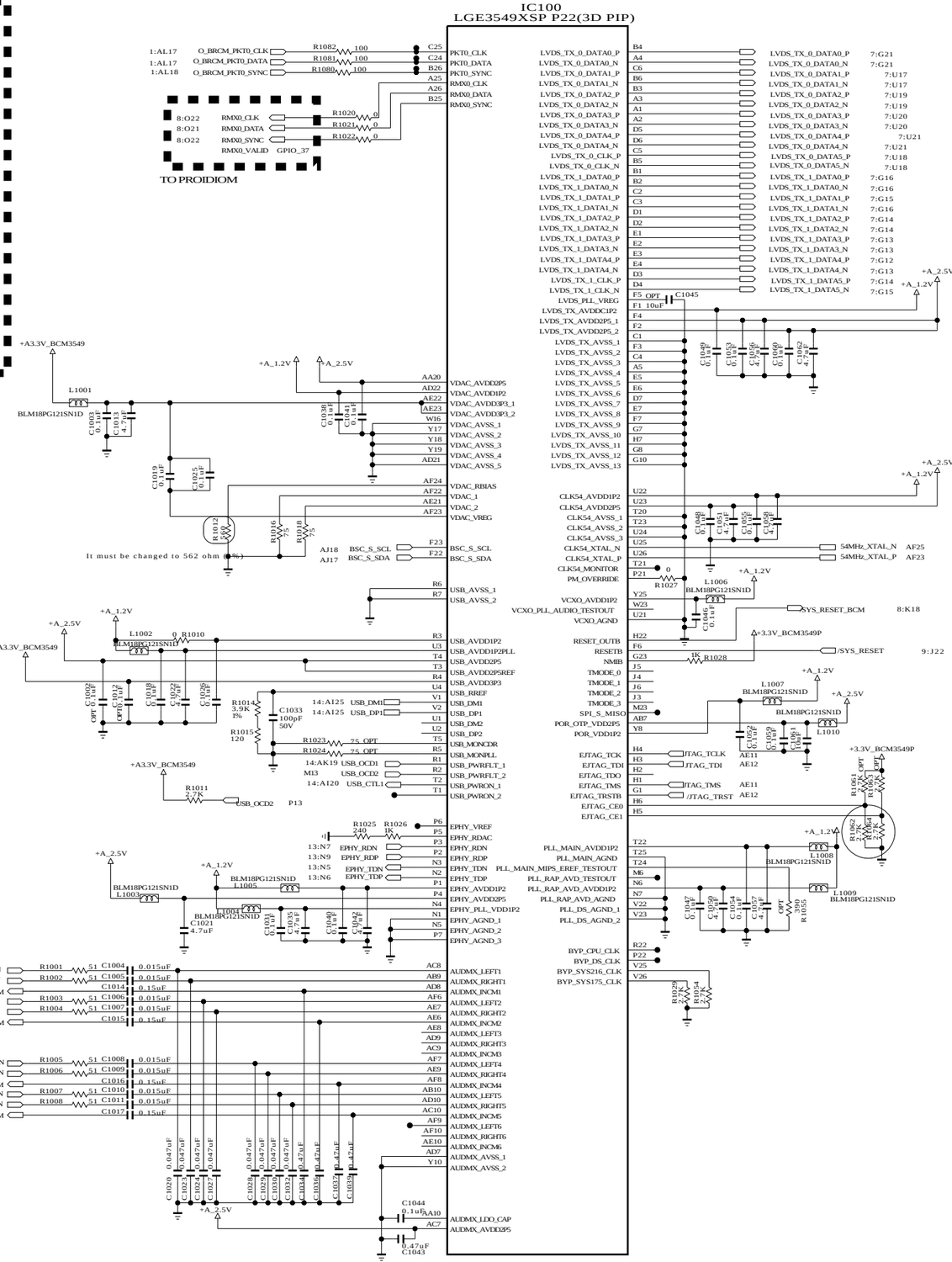
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	BCM3549P	SHEET	9 / 18

PStoPDF trial version. http://www.oakdoc.com

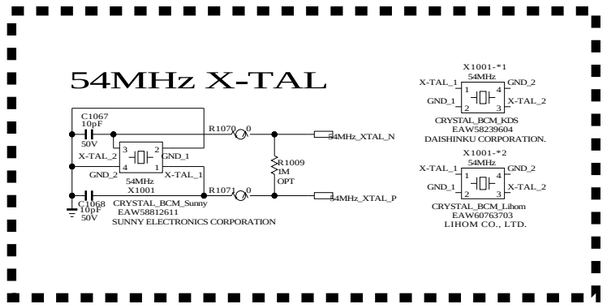
BCM3549 POWER



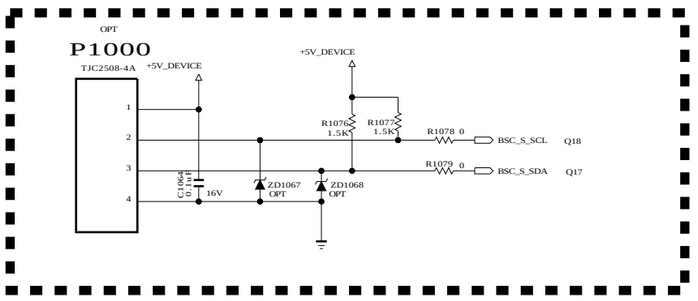
IC100
LGE3549XSP P22(3D PIP)



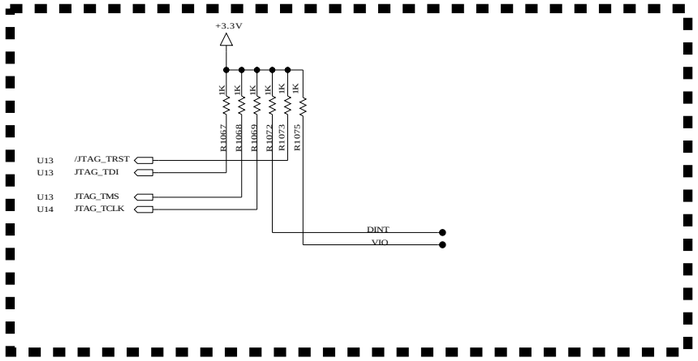
X-TAL



BROAD BAND STUDIO



EJTAG



THE ⚠S YMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠SYMBOL MARK OF THE SCHEMETIC.

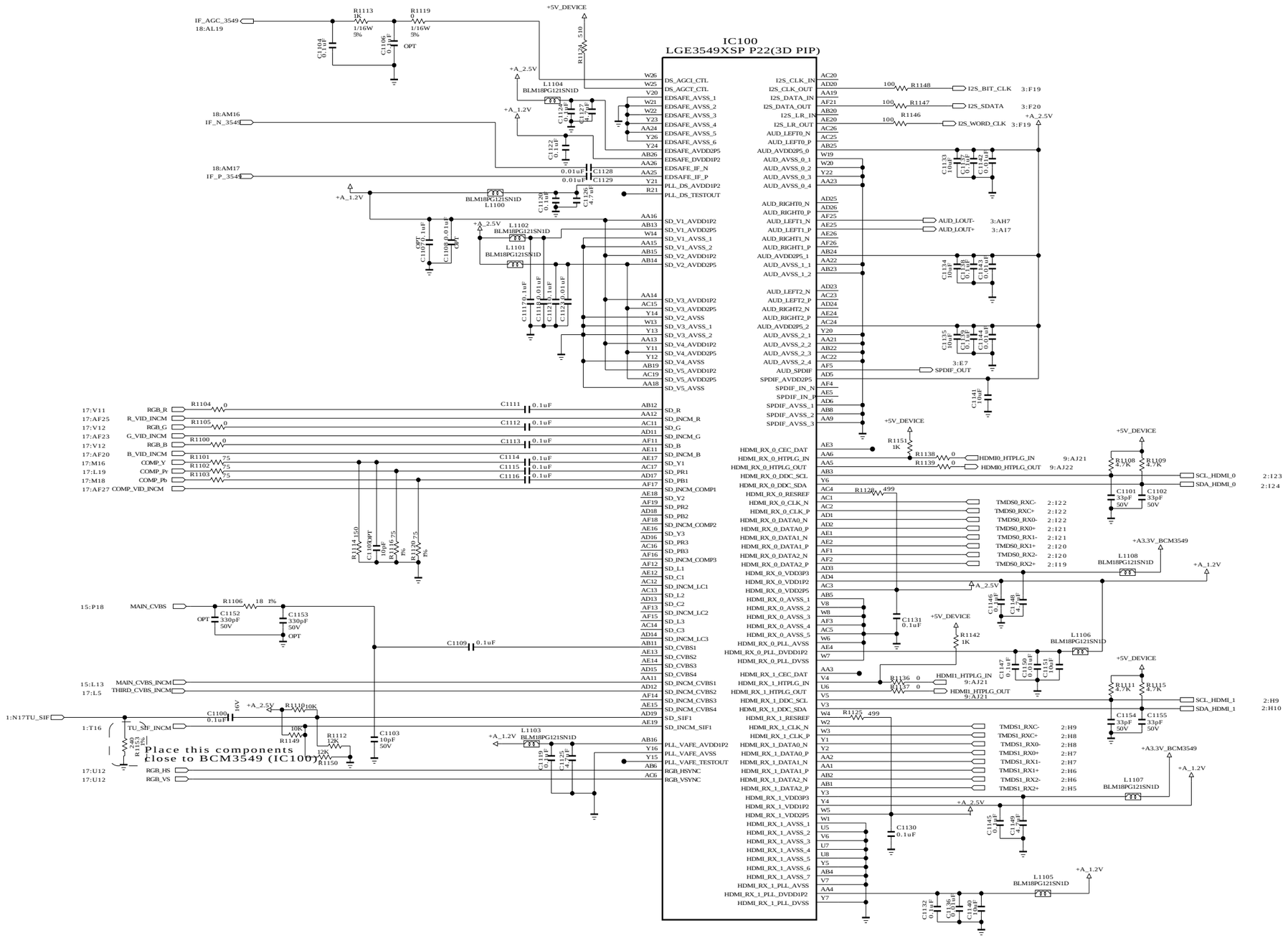
SECRET

LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	AUD/LVDS/JTAG	SHEET	10 / 18

PStoPDF trial version. http://www.oakdoc.com



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

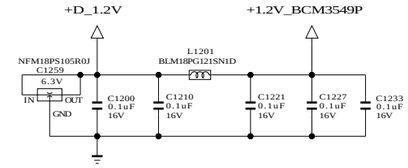
SECRET

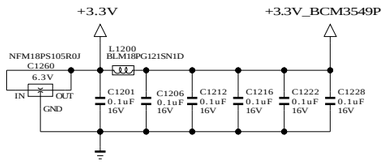
LGElectronics

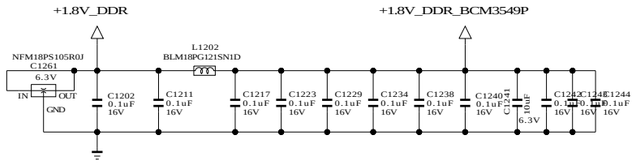
LG ELECTRONICS

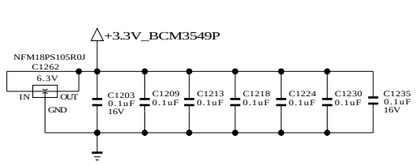
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	BCM_VIDEO_IN	SHEET	11 / 18

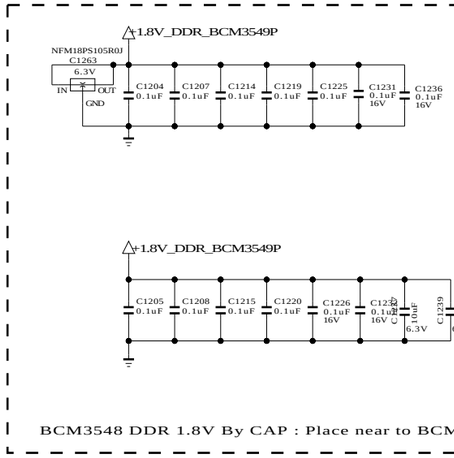
PStoPDF trial version. http://www.oakdoc.com

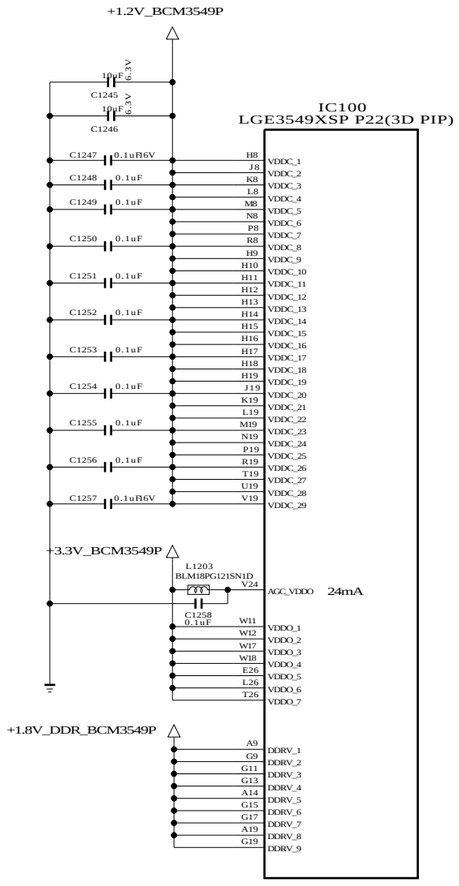


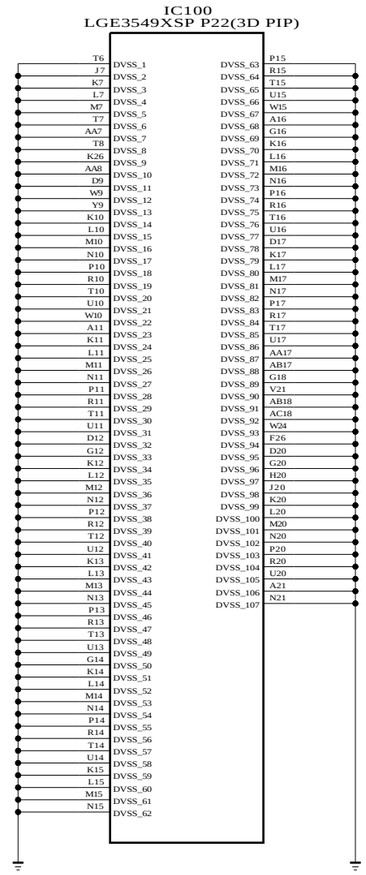












THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

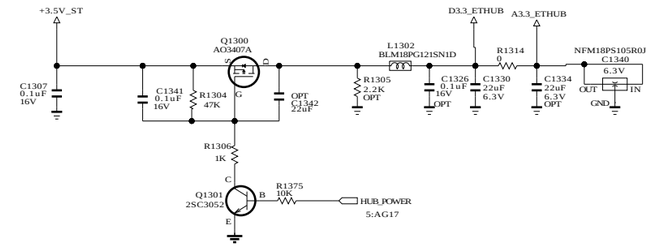
SECRET

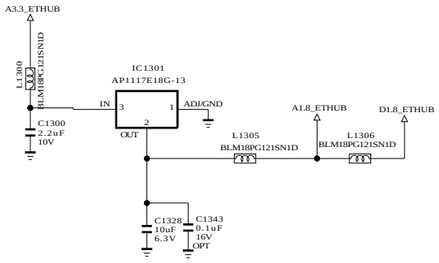
LGElectronics

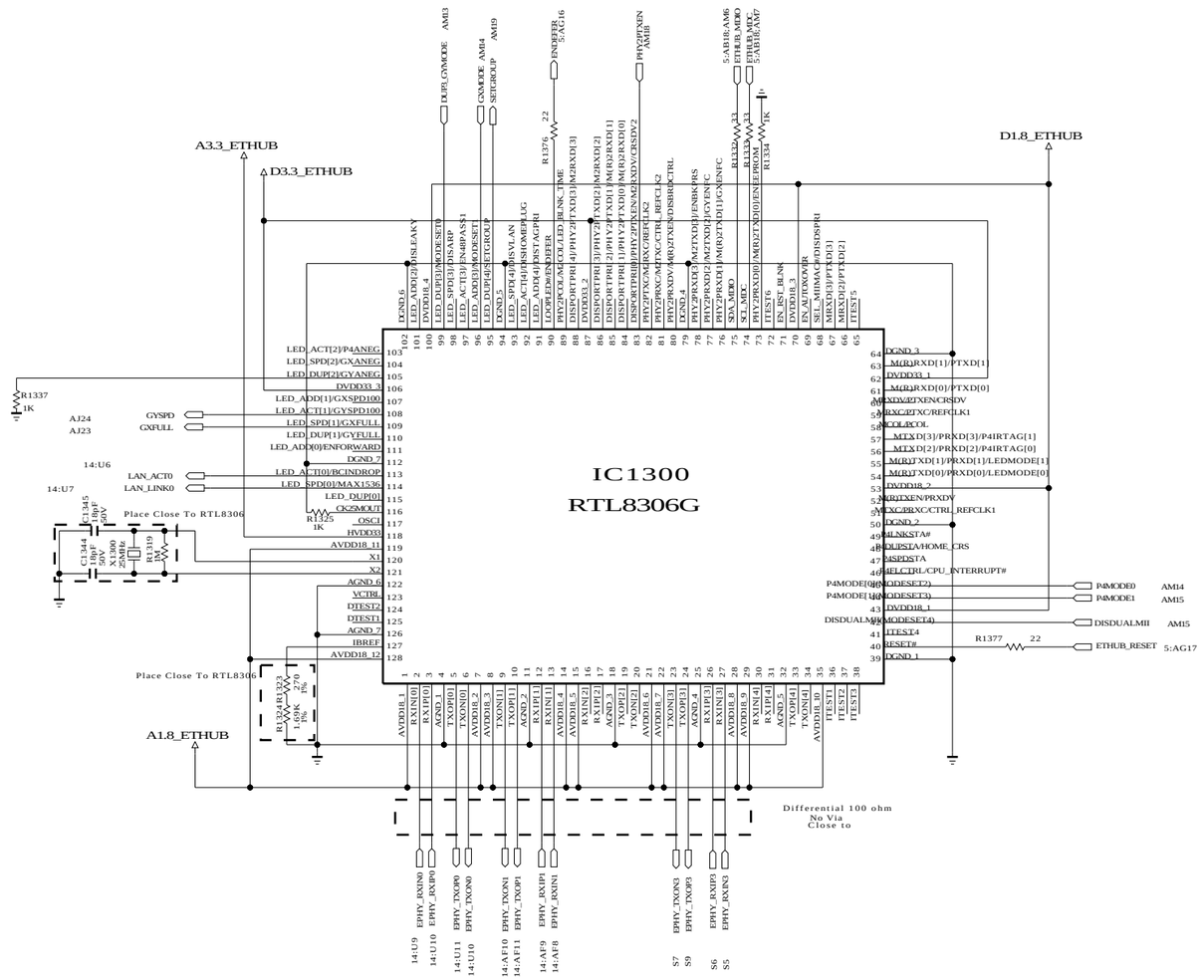
LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	BCM POWER	SHEET	12 / 18

PStoPDF trial version. http://www.oakdoc.com



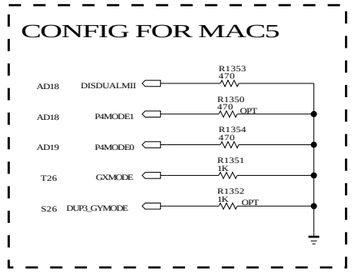


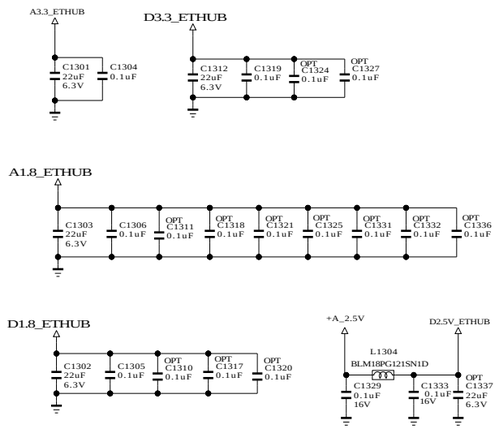


STRAPPING PIN CONFIG

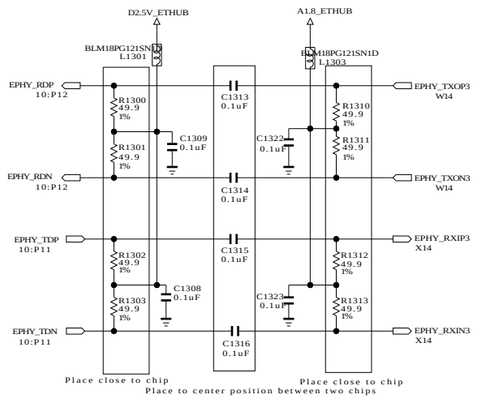
PHY2PRXDV : Broadcast strom control enable/disable
PHY2PRXD3 : Backpressure enable/disable
ENDEFER : Defer enable/disable
EN_AUTOXOVER : Auto cross over enable/disable

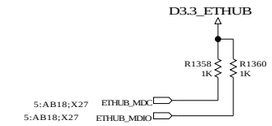
CONFIG FOR MAC5





BCM TO RTL matching





THE ⚠SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠SYMBOL MARK OF THE SCHEMETIC.

SECRET

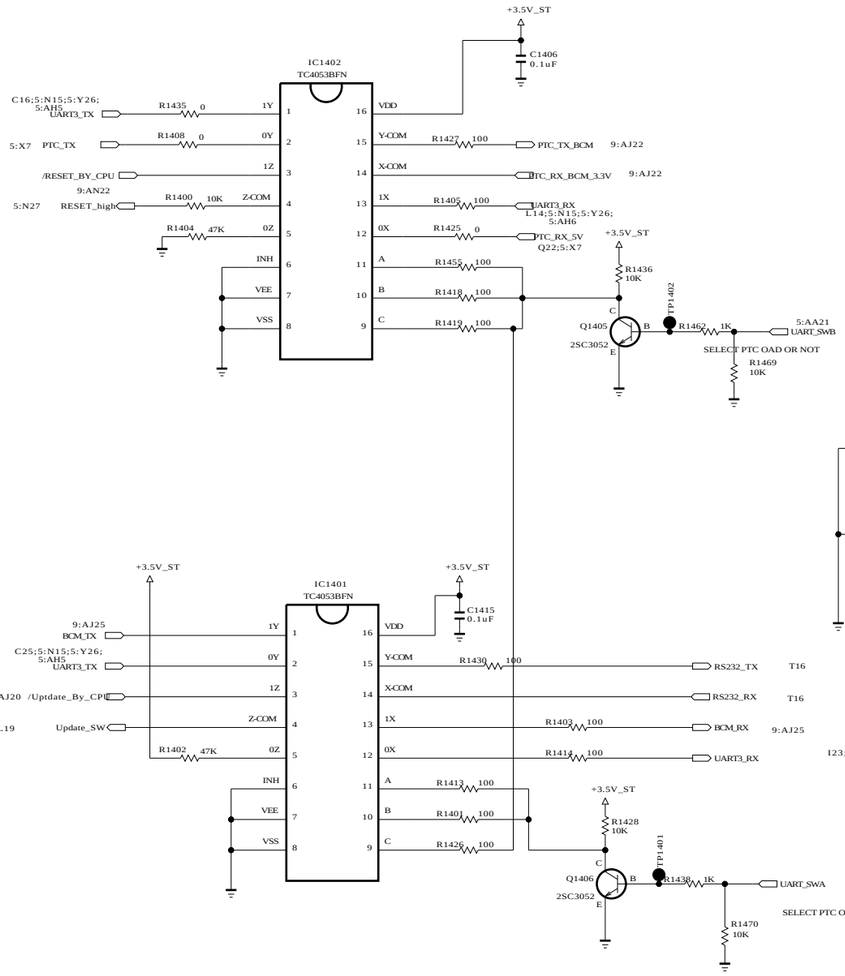
LGElectronics

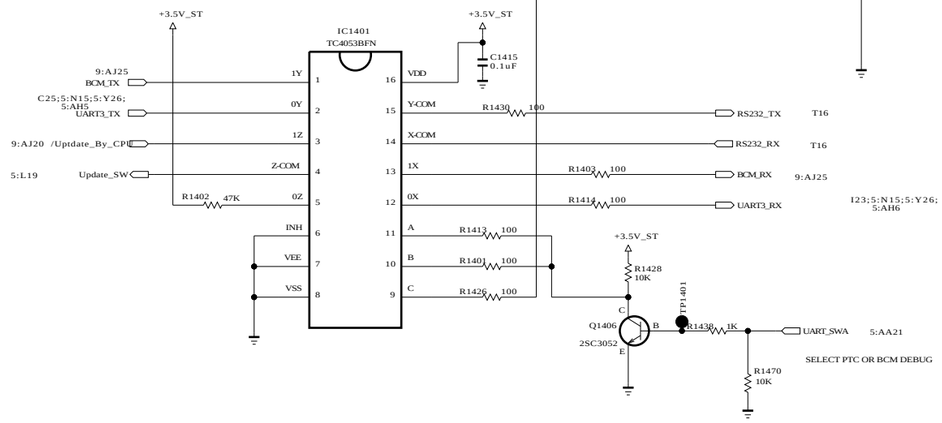
LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	ETHERNET HUB	SHEET	13 / 18

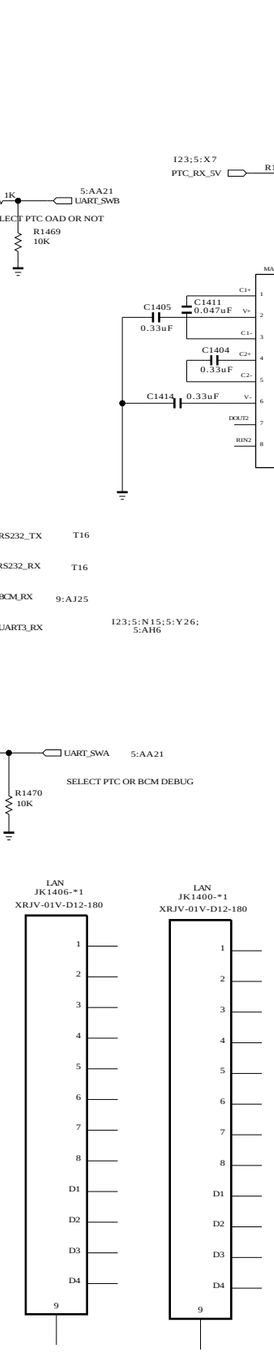
PStoPDF trial version. http://www.oakdoc.com

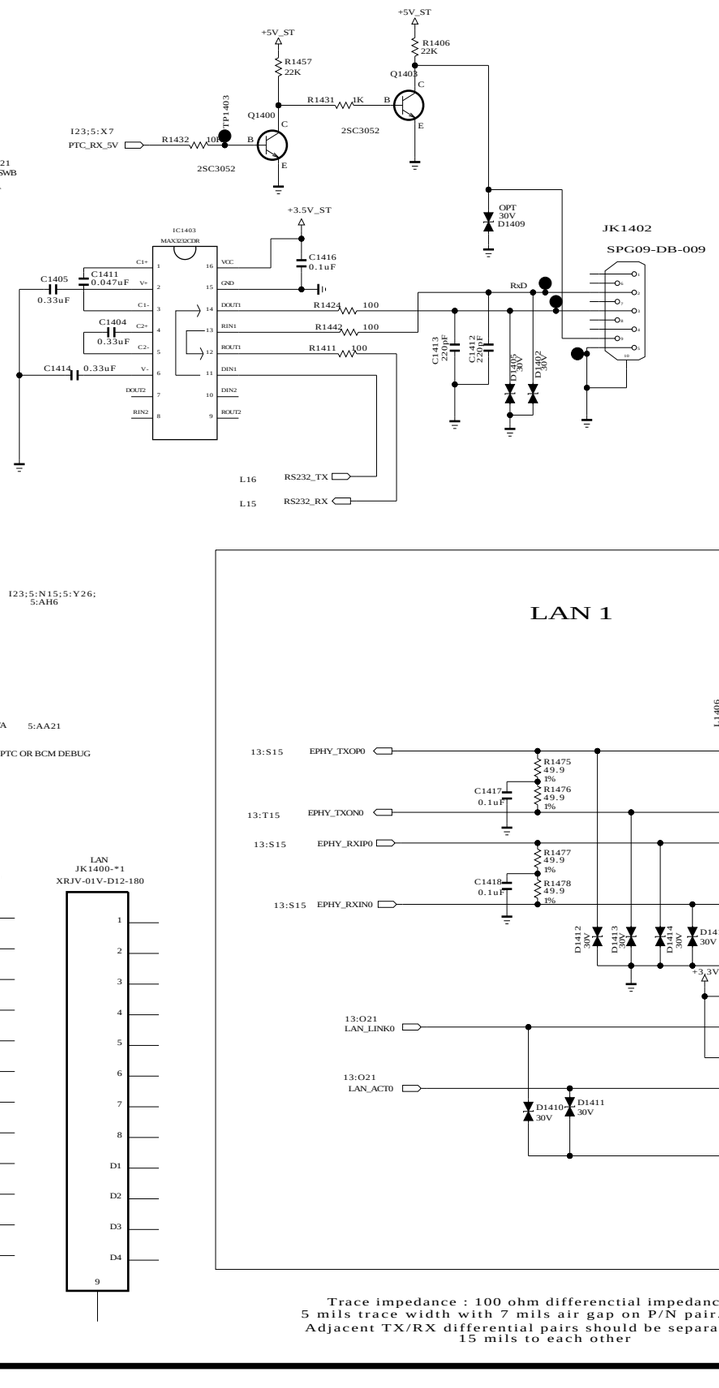
Serial Port

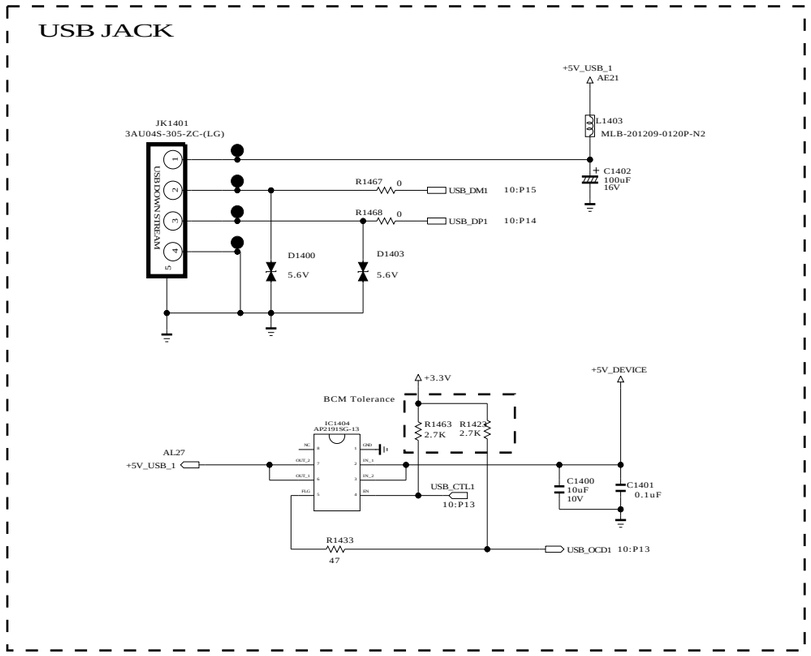


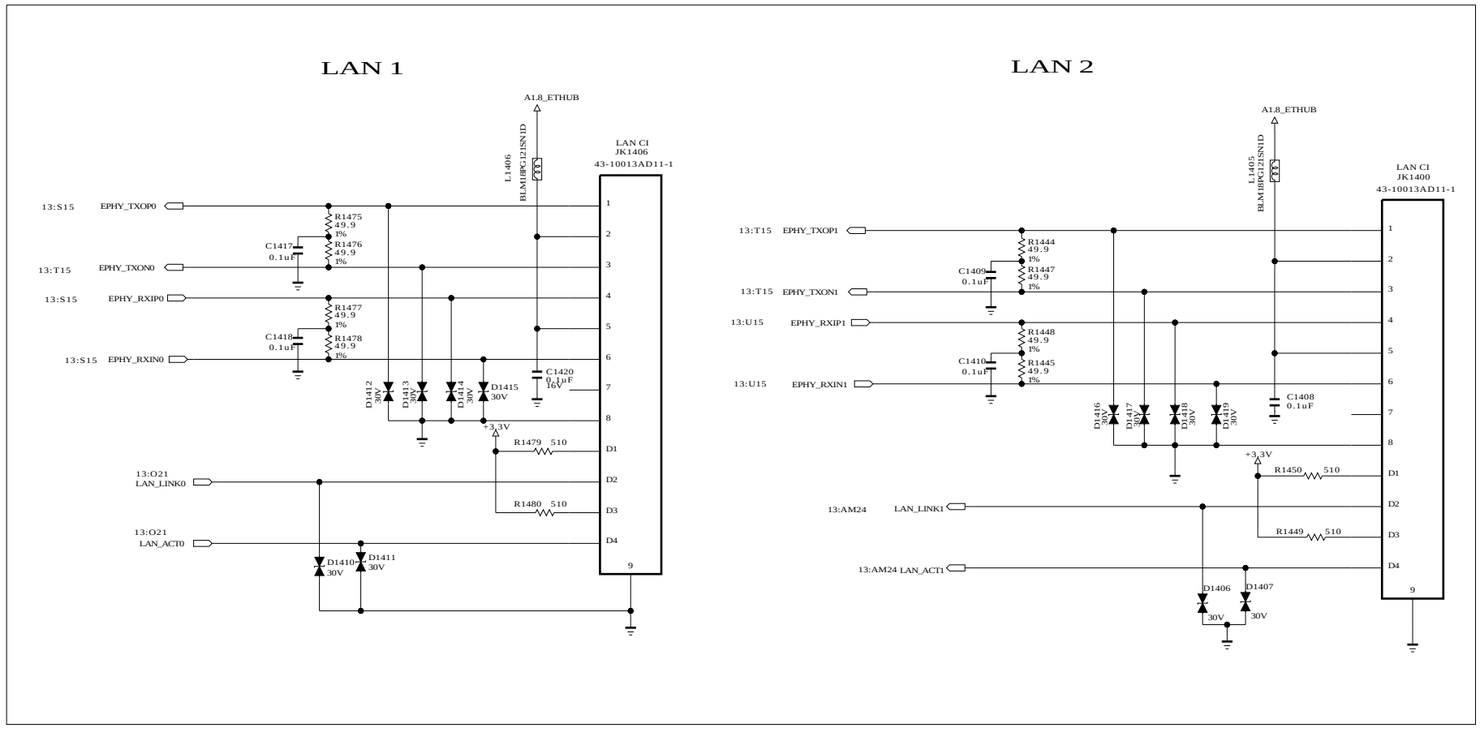


Objective	SW_A	SW_B	
BCM DEBUG	0	X	
PTC DEBUG	1	1	
PTC USB	X	0	
COMMON	X	1	
SIMULATION	X	1	









Trace impedance : 100 ohm differenctial impedance to GND plane
5 mils trace width with 7 mils air gap on P/N pair.
Adjacent TX/RX differential pairs should be separated by more than
15 mils to each other

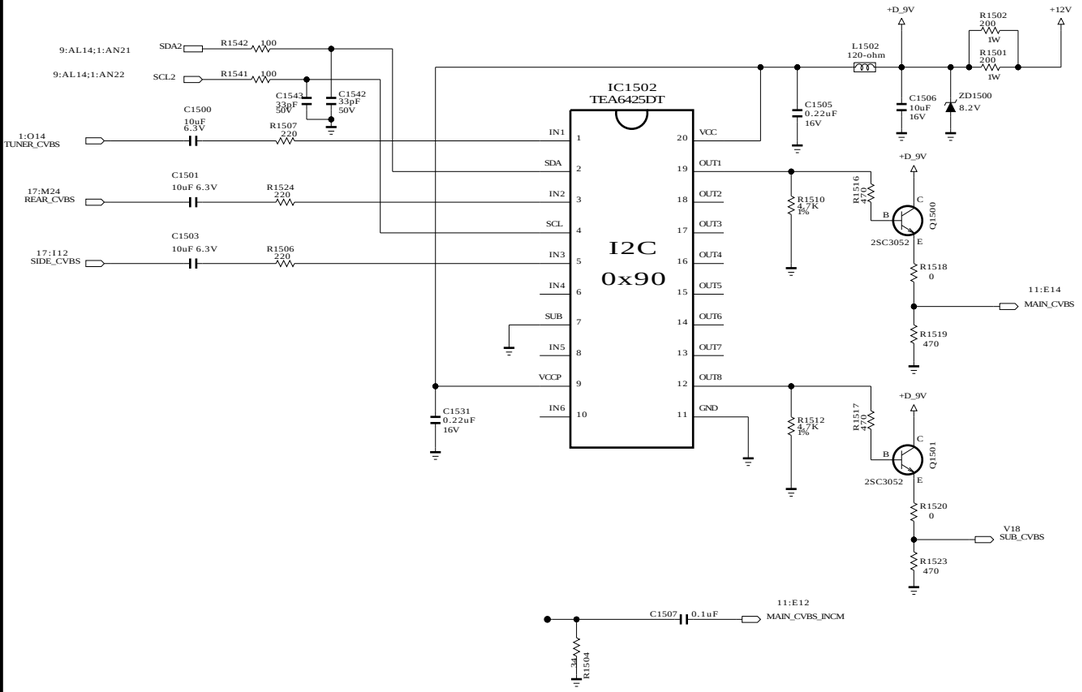
THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

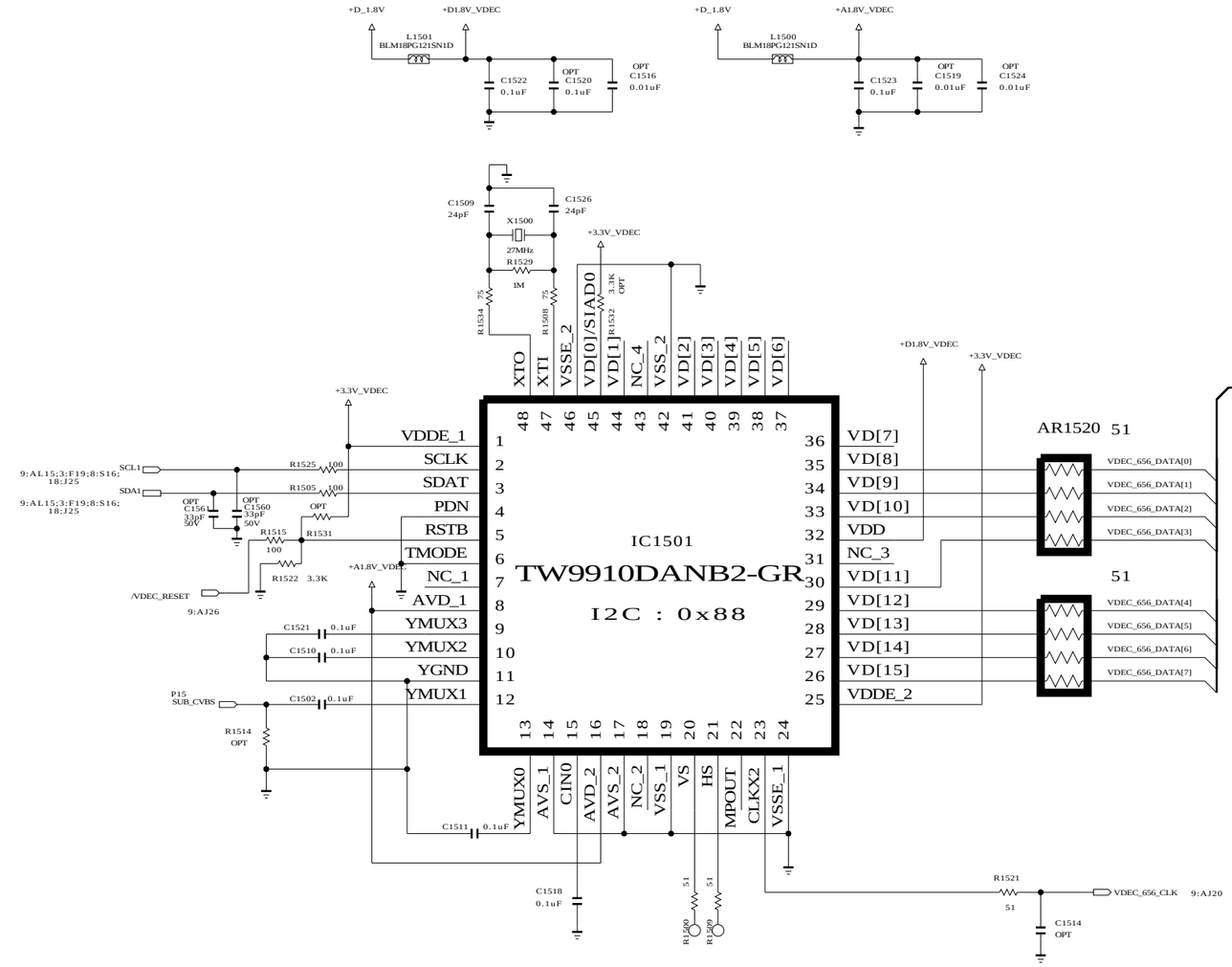
SECRET
LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	RS232/USB/Lan	SHEET	14 / 18

PStoPDF trial version. http://www.oakdoc.com





THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

SECRET

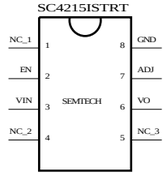
LGElectronics

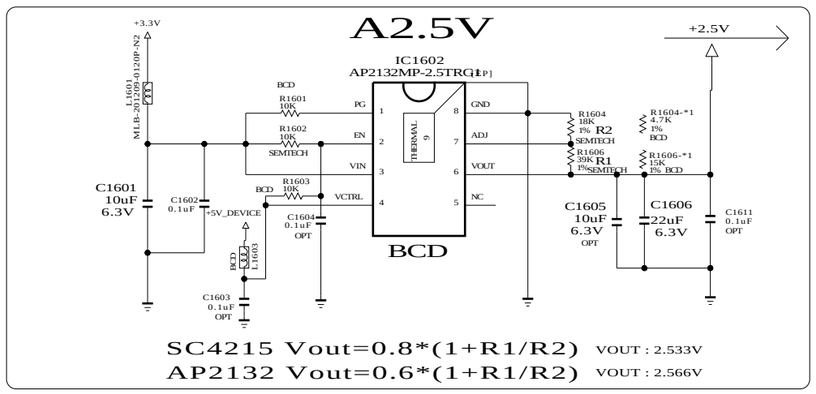
LG ELECTRONICS

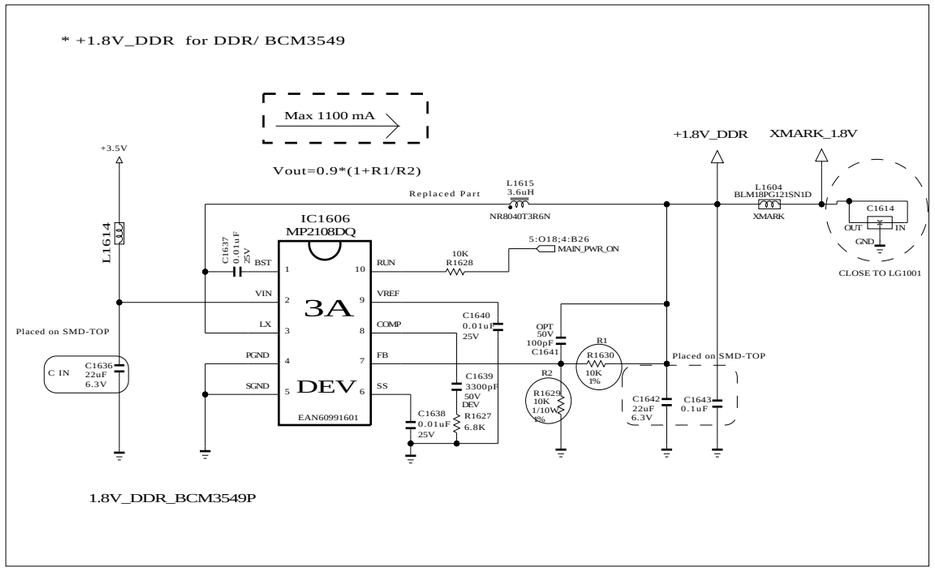
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	VDEC	SHEET	15 / 18

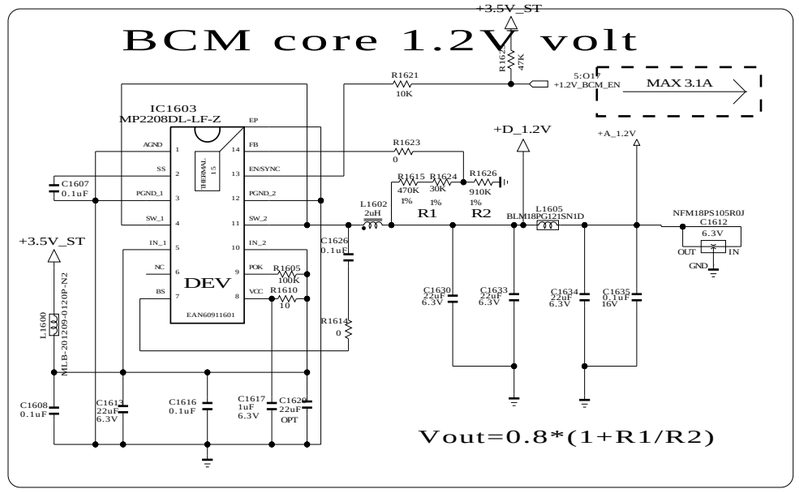
PStoPDF trial version. http://www.oakdoc.com

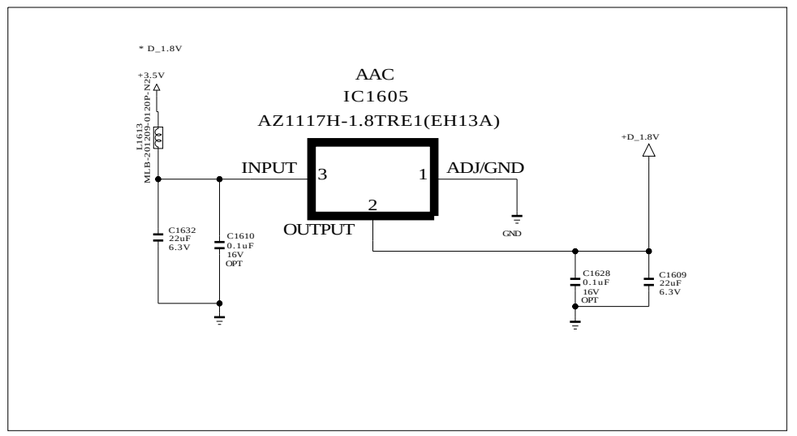
IC1602-*1
SC4215ISTRT





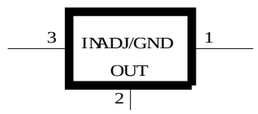






DIODES
IC1605-*1
AP1117E18G-13

BCD
IC1605-*2
AZ1117BH-1.8TRE1



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

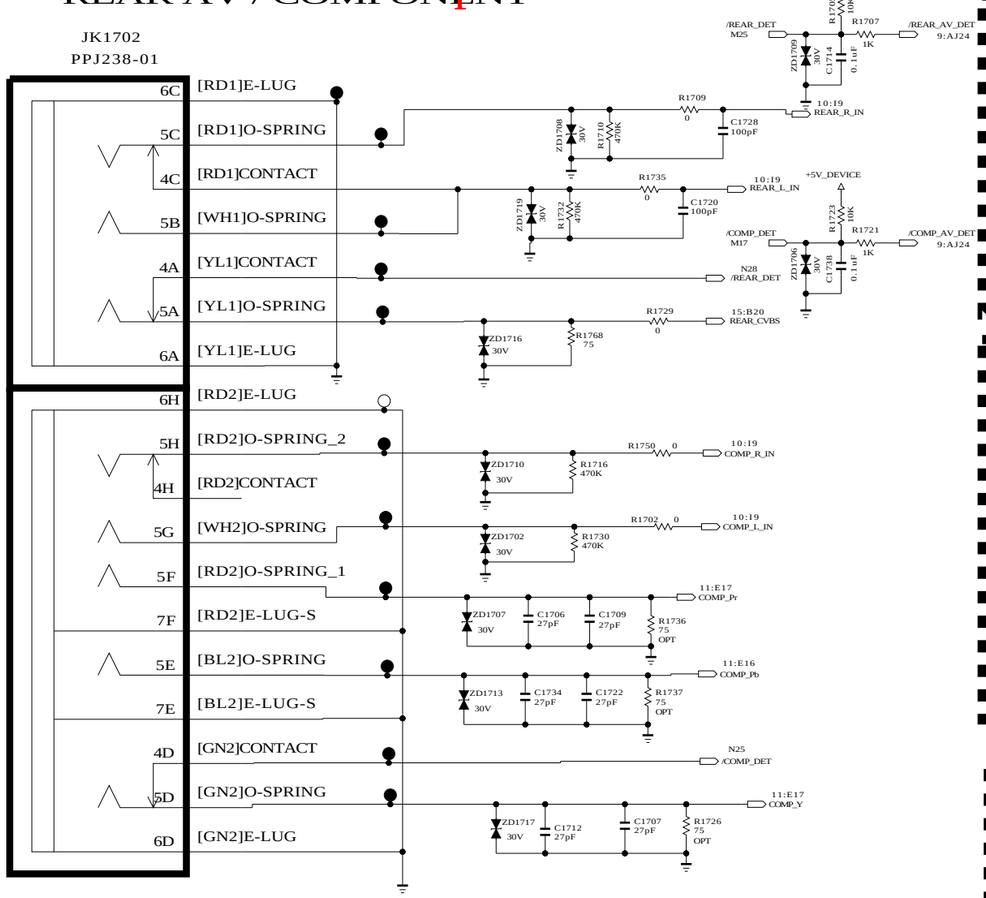
SECRET
LGElectronics

LG ELECTRONICS

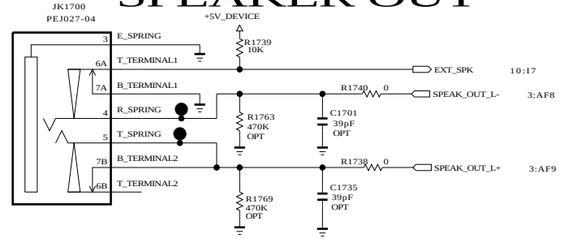
MODEL	32/37/42LD660H-UA	DATE	2010.10.11
BLOCK	POWER_ST5V	SHEET	16 / 18

PStoPDF trial version, http://www.oakdoc.com

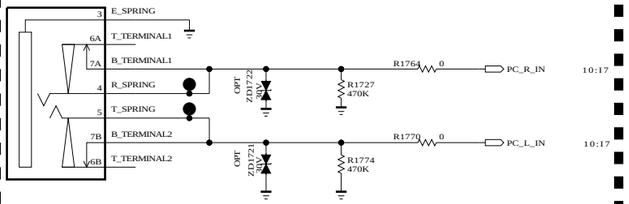
REAR AV / COMPONENT



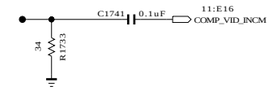
SPEAKER OUT



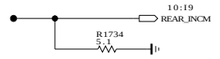
PC AUDIO IN



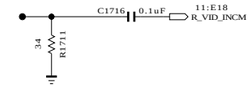
INCM TRACE



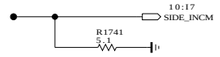
Place TP near COMPONENT connector
Trace alongside COMP_Y signal



Place TP/resistor near REAR AV connector
Trasce between REAR_L_IN and REAR_R_IN signals

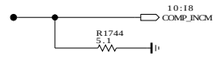


Place TP near RGB connector
Trace alongside RGB_R signal

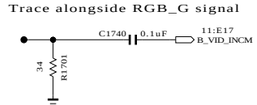


Place TP/resistor near SIDE AV connector
Trasce between SIDE_L_IN and SIDE_R_IN signals

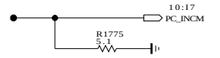
Place TP near RGB connector
Trace alongside RGB_G signal



Place TP/resistor near COMPONENT connector
Trasce between COMP_L_IN and COMP_R_IN signals

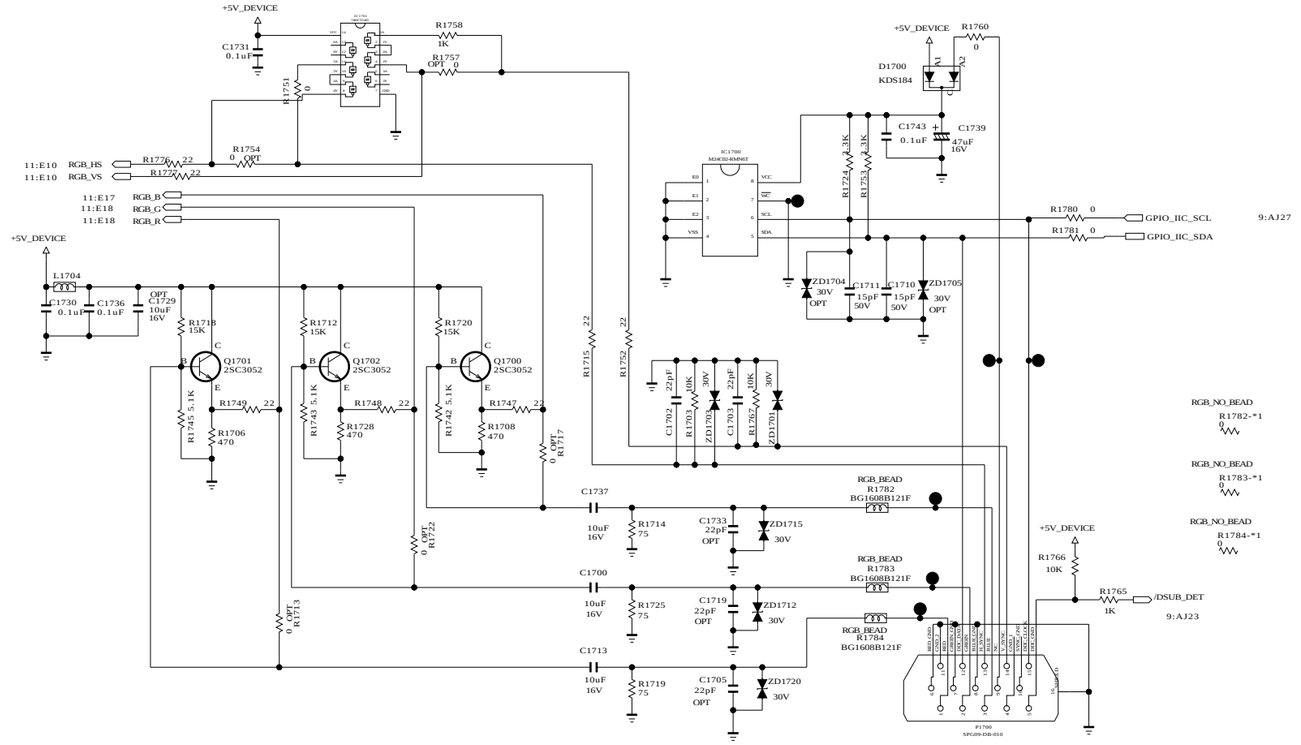


Place TP near RGB connector
Trace alongside RGB_B signal

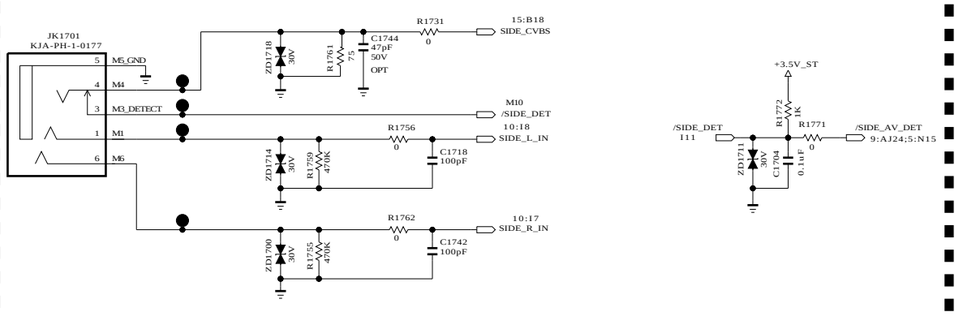


Place TP/resistor near PC AUDIO IN connector
Trasce between PC_L_IN and PC_R_IN signals

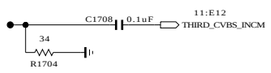
PC RGB IN



SIDE AV



CVBS TEST



Place TP near THIRD_CVBS signal start point
Trace alongside THIRD_CVBS signal

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

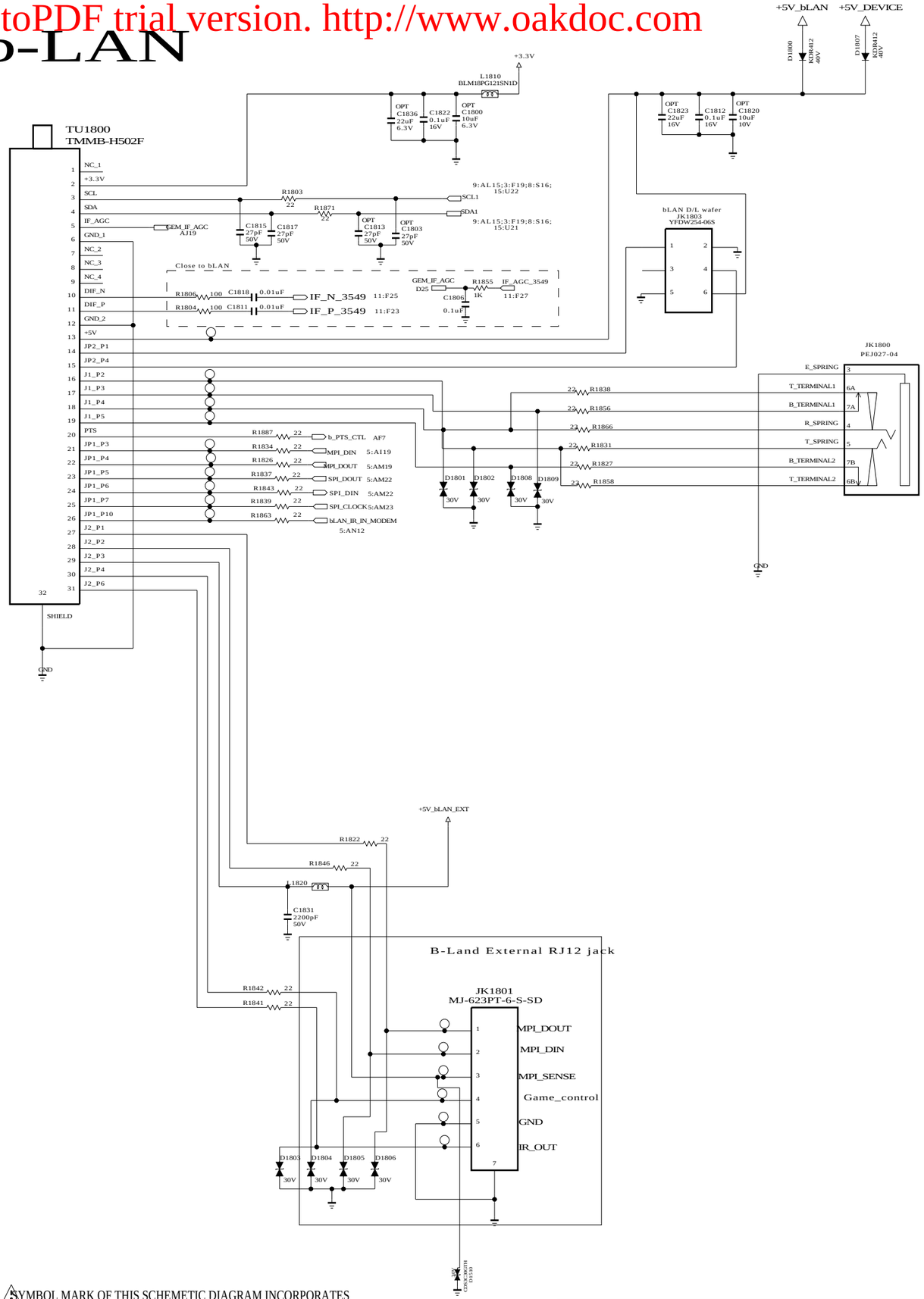
SECRET
LGElectronics

LG ELECTRONICS

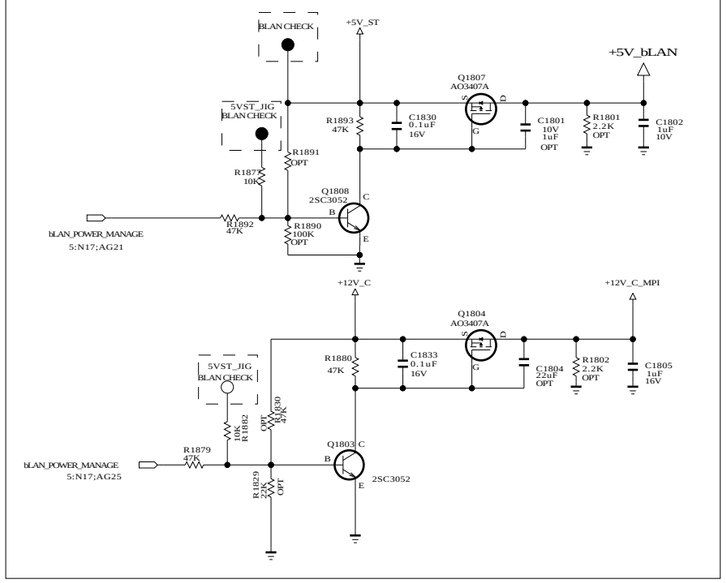
MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	EXT_JACK	SHEET	17 / 18

PStoPDF trial version. http://www.oakdoc.com

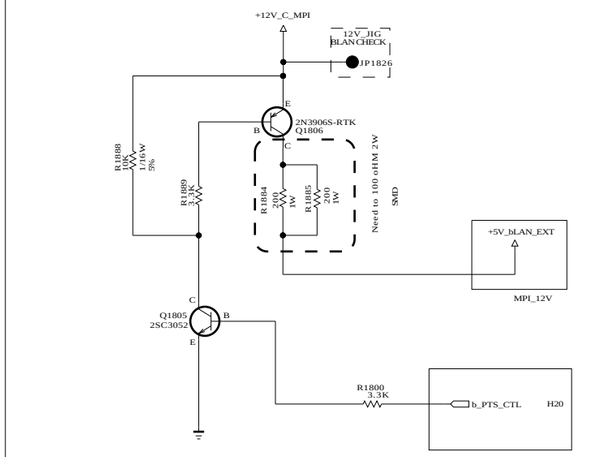
b-LAN



b-LAN POWER



B-Lan MPI pin3 output power(12V or 5V) control



MPI_5V or 12V (PIN3) Select Control from b-LAN

THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFATURES SPECFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMETIC.

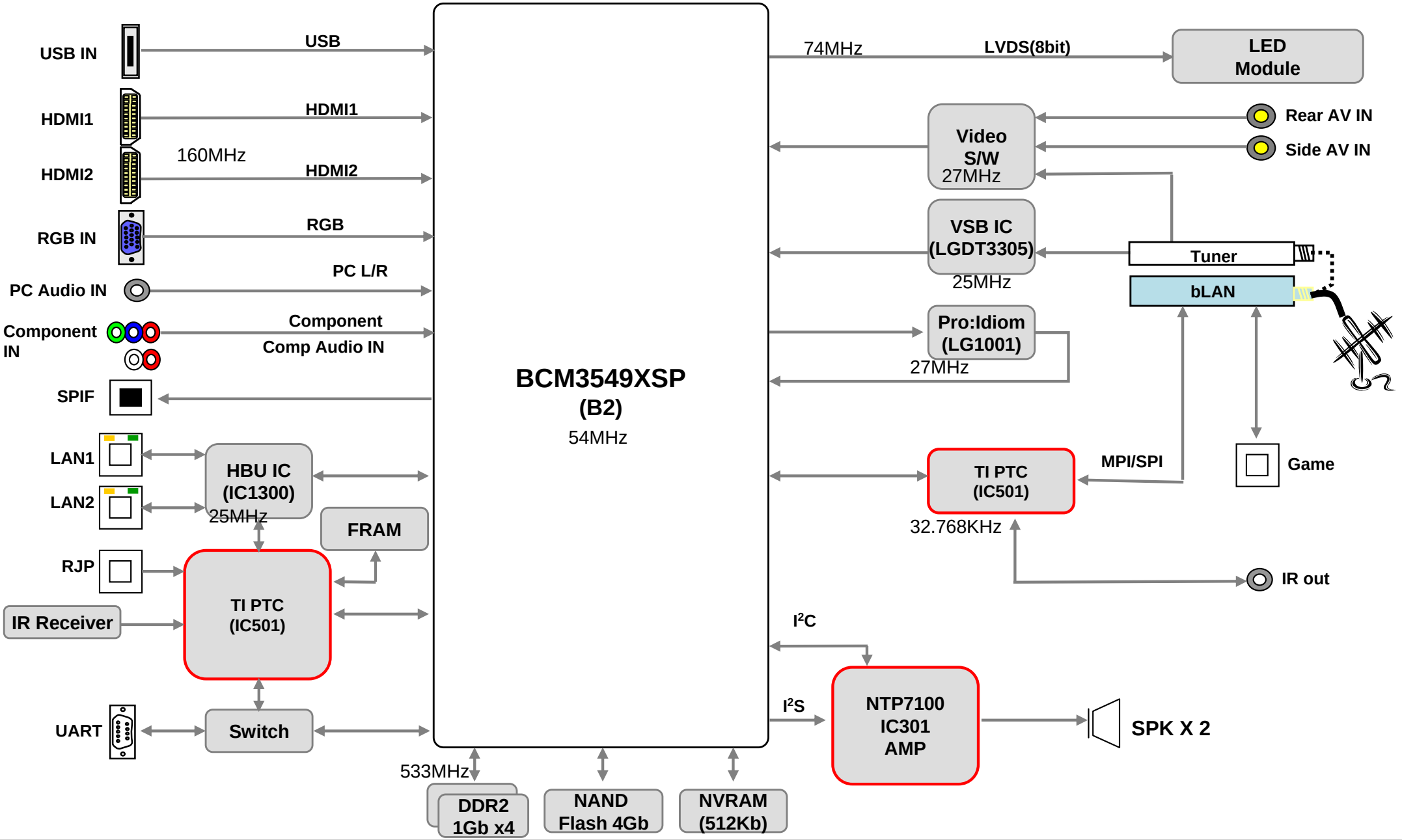
SECRET
LGElectronics

LG ELECTRONICS

MODEL	LV555H-UA	DATE	2010.12.10
BLOCK	b-LAN	SHEET	18 / 18

LG
Life's Good

xxLD555H-UA Block Diagram



Copyright ⓒ 2011 LG Electronics. Inc. All right reserved.
Only for training and service purposes

LGE Internal Use Only